Specifications
For

NCSPA Shipping and Receiving
Morehead City, NC

NCSPA# 10665
State ID# 24-28316-01A

Coastal Architecture
4206 Bridges Street, Suite C
Morehead City, North Carolina 28557
Phone: 252-247-2127
Email: Lee@CoastalArchitecture.net

Project No.
23027

Issued for Bid:

07/12/24

Project Manual

Including

Bid Proposal, Contract Documents & Specifications

For the Construction of

NCSPA Shipping and Receiving
Morehead City, NC

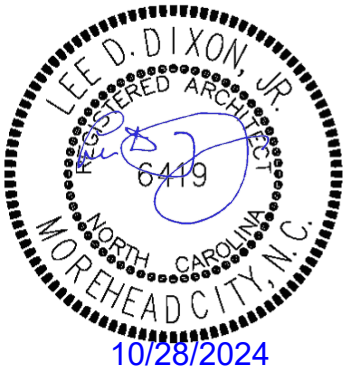
NCSPA# 10665
State ID# 24-28316-01A

PREPARED BY:

Coastal Architecture
4206 Bridges Street Extension, Suite c
Morehead City, NC 28557
252-247-2127

Architect's Project Number: 23027

Date of Issue: 07/12/24



10/28/2024

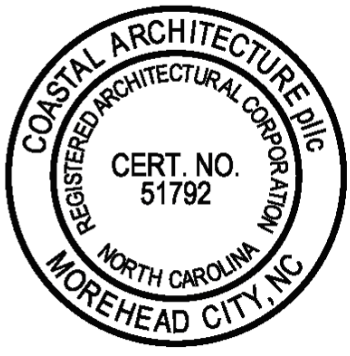


TABLE OF CONTENTS

SPECIFICATIONS
FOR

NCSPA SHIPPING AND RECIEVING
MOREHEAD CITY, NC
NCSPA # 10665
PROJECT # 23027

SPECIFICATIONS

04220 – Concrete Unit Masonry

DIVISION 5 - METALS

Not Applicable

DIVISION 6 - CARPENTRY

06100 – Rough Carpentry
06192 – Prefabricated Wood Trusses
06400 – Architectural Woodwork

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

07210 – Building Insulation
07460 – Fiber Cement Siding
07600 – Flashing and Sheet Metal
07610 – Standing Seam Metal Roofing
07920 – Joint Sealants

DIVISION 8 - DOORS AND WINDOWS

08100 – Fiberglass Doors and Frames
08111 – Standard Steel Door Frames
08120 – Aluminum Doors and Frames
08211 – Wood Doors
08520 – Aluminum Window/Storefront
08710 – Door Hardware
08800 – Glazing

DIVISION 9 - FINISHES

09260 – Gypsum Wallboard Systems
09660 – Vinyl Planks
09900 – Painting

DIVISION 10 - SPECIALTIES

10520 – Fire Extinguisher and Cabinets
10800 – Toilet Room Accessories

DIVISION 11 - EQUIPMENT

Not Applicable

DIVISION 12 - FURNISHINGS

Not Applicable

DIVISION 13 - SPECIAL CONSTRUCTION

Not Applicable

DIVISION 14 - CONVEYING SYSTEMS

Not Applicable

DIVISION 15A - PLUMBING

See Plans for Specifications

DIVISION 15B - MECHANICAL

See Plans for Specifications

DIVISION 16 - ELECTRICAL

See Plans for Specifications

Invitation For Bids

Proposals will be received until **2:00 PM** on **January 16, 2025** at the Maritime Building second floor conference room, Arendell Street Morehead City, NC.

Attention: Bidders

Bids for the construction of the NCSPA Shipping and Receiving at which time and place the bids will be opened and read at the Maritime Building, Arendell Street, Morehead City, NC 28557.

. Please note that a **5% Bid Bond** is required, and **a 100% Performance and Payment Bond will be required.**

Plans and specifications can be downloaded free of charge from our website www.coastalarchitecture.net , we require that you email your company information to Lee@coastalarchitecture.net so that we can insure any addendums or project information can be transmitted appropriately.

A (non-mandatory) pre-bid meeting will be held for all interested bidders on December 18, 2024 in the second floor conference room of the Maritime Building, Arendell Street, Morehead City, NC.

Complete plans and specifications for this project can be obtained from Coastal Architecture, 4206 Bridges Street Extension, Suite C, Morehead City, NC 28557, phone (252) 247-2127 during normal business hours for deposit of $350.00/set. (Refundable if returned in good condition within 10 days after bid.)

Call (252) 247-2127 if you wish to obtain plans and specs in lieu of the free download.

Signed:

Mark Blake
NCSPA

NOTICE TO BIDDERS

Sealed bid for this work will be received by:

Mark Blake
NCSPA
The Maritime Building
Morehead City, NC 28557
NCSPA # 10665

For the furnishing of labor, material, and equipment entering into the construction of:

NCSPA Shipping and Receiving
NCSPA
Morehead City, NC
NCSPA # 10665

Bids will be received for single prime. All proposals shall be lump sum.

Received up to **2pm**, on **January 16, 2025** in the second floor conference room of the Maritime Building in Morehead City, NC and immediately thereafter publicly opened and read aloud. Complete plans and specification and contract documents can be obtained from:

Coastal Architecture
4206 Bridges Street Extension, Suite C
Morehead City, NC 28557
252-247-2127
www.coastalarchitecture.net

Contractors are hereby notified that they must have proper license under the State laws governing their respective trades and that North Carolina General Statute 87 will be observed in receiving and awarding contracts. General Contractors must have general license classification for General Construction Building .

No bid may be withdrawn after the opening of bids for a period of 30 days. The Owner reserves the right to reject any or all bids and waive informalities. Bids shall be made only on the BID/ACEPTANCE form provided herein with all blank spaces for bids properly filled in and all signatures properly executed.

Pre-Bid Meeting

A (non-mandatory) pre-bid meeting will be held for all interested bidders on December 18, 2024 in the second floor conference room of the Maritime Building, Arendell Street, Morehead City, NC.

F O R M OF P R O P O S A L

NCSPA Shipping and Receiving ____ Contract: _____

_____ Bidder: _____

NCSPA # 10665 _____ Date: _____

The undersigned, as bidder, hereby declares that the only person or persons interested in this proposal as principal or principals is or are named herein and that no other person than herein mentioned has any interest in this proposal or in the contract to be entered into; that this proposal is made without connection with any other person, company or parties making a bid or proposal; and that it is in all respects fair and in good faith without collusion or fraud. The bidder further declares that he has examined the site of the work and the contract documents relative thereto, and has read all special provisions furnished prior to the opening of bids; that he has satisfied himself relative to the work to be performed. The bidder further declares that he and his subcontractors have fully complied with NCGS 64, Article 2 in regards to E-Verification as required by Section 2.(c) of Session Law 2013-418, codified as N.C. Gen. Stat. § 143-129(j).

.

The Bidder proposes and agrees if this proposal is accepted to contract with the

NCSPA

in the form of contract specified below, to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation and labor necessary to complete the construction of

NCSPA Shipping and Recieving

in full in complete accordance with the plans, specifications, and contract documents, to the full and entire satisfaction of the State of North Carolina, and the NCSPA and Coastal Architecture, pllc.

with a definite understanding that no money will be allowed for extra work except as set forth in the General Conditions and the contract documents, for the sum of:

SINGLE PRIME CONTRACT: _____

Base Bid:

_____ Dollars($) _____

General Subcontractor: Plumbing Subcontractor:

_____ Lic _____ _____ Lic _____

Mechanical Subcontractor: Electrical Subcontractor:

_____ Lic _____ _____ Lic _____

GS143-128(d) requires all single prime bidders to identify their subcontractors for the above subdivisions of work. A contractor whose bid is accepted shall not substitute any person as subcontractor in the place of the subcontractor listed in the original bid, except (i) if the listed subcontractor's bid is later determined by the contractor to be non-responsible or non-responsive or the listed subcontractor refuses to enter into a contract for the complete performance of the bid work, or (ii) with the approval of the awarding authority for good cause shown by the contractor.

ALTERNATES: _____

Should any of the alternates as described in the contract documents be accepted, the amount written below shall be the amount to be "added to" or "deducted from" the base bid. (Strike out "Add" or "Deduct" as appropriate.)

Not Applicable

UNIT PRICES

Unit prices quoted and accepted shall apply throughout the life of the contract, except as otherwise specifically noted. Unit prices shall be applied, as appropriate, to compute the total value of changes in the base bid quantity of the work all in accordance with the contract documents.

Not Applicable

The bidder further proposes and agrees hereby to commence work under this contract on a date to be specified in a written order of the designer and shall fully complete all work thereunder within the time specified in the Supplementary General Conditions Article 23. Applicable liquidated damages amount is also stated in the Supplementary General Conditions Article 23.

MINORITY BUSINESS PARTICIPATION REQUIREMENTS

Provide with the bid - Under GS 143-128.2(c) the undersigned bidder shall identify **on its bid** (Identification of Minority Business Participation Form) the minority businesses that it will use on the project with the total dollar value of the bids that will be performed by the minority businesses. **Also** list the good faith efforts (Affidavit **A**) made to solicit minority participation in the bid effort.

NOTE: A contractor that performs all of the work with its own workforce may submit an Affidavit (**B)** to that effect in lieu of Affidavit (**A)** required above. The MB Participation Form must still be submitted even if there is zero participation.

After the bid opening - The Owner will consider all bids and alternates and determine the lowest responsible, responsive bidder. Upon notification of being the apparent low bidder, the bidder shall then file within 72 hours of the notification of being the apparent lowest bidder, the following:

An Affidavit (**C**) that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the 10% goal established. This affidavit shall give rise to the presumption that the bidder has made the required good faith effort and Affidavit **D** is not necessary;

*** OR ***

If less than the 10% goal, Affidavit (**D**) of its good faith effort to meet the goal shall be provided. The document must include evidence of all good faith efforts that were implemented, including any advertisements, solicitations and other specific actions demonstrating recruitment and selection of minority businesses for participation in the contract.

Note: Bidders must always submit **with their bid** the Identification of Minority Business Participation Form listing all MB contractors, vendors and suppliers that will be used. If there is no MB participation, then enter none or zero on the form. Affidavit A **or** Affidavit B, as applicable, also must be submitted with the bid. Failure to file a required affidavit or documentation with the bid or after being notified apparent low bidder is grounds for rejection of the bid.

Proposal Signature Page

The undersigned further agrees that in the case of failure on his part to execute the said contract and the bonds within ten (10) consecutive calendar days after being given written notice of the award of contract, the certified check, cash or bid bond accompanying this bid shall be paid into the funds of the owner's account set aside for the project, as liquidated damages for such failure; otherwise the certified check, cash or bid bond accompanying this proposal shall be returned to the undersigned.

Respectfully submitted this day of _____

_____
(Name of firm or corporation making bid)

WITNESS:

_____
(Proprietorship or Partnership)

By: _____
Signature

Name: _____
Print or type

Title _____
(Owner/Partner/Pres./V.Pres)

Address _____

_____

ATTEST:

By: _____

Title: _____
(Corp. Sec. or Asst. Sec. only)

License No. _____

Federal I.D. No. _____

Email Address: _____

(CORPORATE SEAL)

Addendum received and used in computing bid:

Addendum No. 1 _____ Addendum No. 3 _____ Addendum No. 5 _____ Addendum No. 6 _____

Addendum No. 2 _____ Addendum No. 4 _____ Addendum No. 6 _____ Addendum No. 7 _____

GUIDELINES FOR RECRUITMENT AND SELECTION OF MINORITY BUSINESSES FOR PARTICIPATION IN STATE CONSTRUCTION CONTRACTS

In accordance with G.S. 143-128.2 (effective January 1, 2002) these guidelines establish goals for minority participation in single-prime bidding, separate-prime bidding, construction manager at risk, and alternative contracting methods, on State construction projects in the amount of $300,000 or more. The legislation provides that the State shall have a verifiable ten percent (10%) goal for participation by minority businesses in the total value of work for each project for which a contract or contracts are awarded. These requirements are published to accomplish that end.

SECTION A: INTENT

It is the intent of these guidelines that the State of North Carolina, as awarding authority for construction projects, and the contractors and subcontractors performing the construction contracts awarded shall cooperate and in good faith do all things legal, proper and reasonable to achieve the statutory goal of ten percent (10%) for participation by minority businesses in each construction project as mandated by GS 143-128.2. Nothing in these guidelines shall be construed to require contractors or awarding authorities to award contracts or subcontracts to or to make purchases of materials or equipment from minority-business contractors or minority-business subcontractors who do not submit the lowest responsible, responsive bid or bids.

SECTION B: DEFINITIONS

1. Minority - a person who is a citizen or lawful permanent resident of the United States and who is:
   a. Black, that is, a person having origins in any of the black racial groups in Africa;
   b. Hispanic, that is, a person of Spanish or Portuguese culture with origins in Mexico, South or Central America, or the Caribbean Islands, regardless of race;
   c. Asian American, that is, a person having origins in any of the original peoples of the Far East, Southeast Asia and Asia, the Indian subcontinent, the Pacific Islands;
   d. American Indian, that is, a person having origins in any of the original peoples of North America; or
   e. Female

2. Minority Business - means a business:
   a. In which at least fifty-one percent (51%) is owned by one or more minority persons, or in the case of a corporation, in which at least fifty-one percent (51%) of the stock is owned by one or more minority persons or socially and economically disadvantaged individuals; and
   b. Of which the management and daily business operations are controlled by one or more of the minority persons or socially and economically disadvantaged individuals who own it.

3. Socially and economically disadvantaged individual - means the same as defined in 15 U.S.C. 637. "Socially disadvantaged individuals are those who have been subjected to racial or ethnic prejudice or cultural bias because of their identity as a member of a group without regard to their individual qualities". "Economically disadvantaged individuals are those socially disadvantaged individuals whose ability to compete in the free enterprise system has been impaired due to diminished capital and credit opportunities as compared to others in the same business area who are not socially disadvantaged".

4. Public Entity - means State and all public subdivisions and local governmental units.

5. Owner - The State of North Carolina, through the Agency/Institution named in the contract.

6. Designer – Any person, firm, partnership, or corporation, which has contracted with the State of North Carolina to perform architectural or engineering, work.

7. Bidder - Any person, firm, partnership, corporation, association, or joint venture seeking to be awarded a public contract or subcontract.

8. Contract - A mutually binding legal relationship or any modification thereof obligating the seller to furnish equipment, materials or services, including construction, and obligating the buyer to pay for them.

9. Contractor - Any person, firm, partnership, corporation, association, or joint venture which has contracted with the State of North Carolina to perform construction work or repair.

10. Subcontractor - A firm under contract with the prime contractor or construction manager at risk for supplying materials or labor and materials and/or installation. The subcontractor may or may not provide materials in his subcontract.

SECTION C: RESPONSIBILITIES

1. Office for Historically Underutilized Businesses, Department of Administration (hereinafter referred to as HUB Office).

   The HUB Office has established a program, which allows interested persons or businesses qualifying as a minority business under G.S. 143-128.2, to obtain certification in the State of North Carolina procurement system. The information provided by the minority businesses will be used by the HUB Office to:
   a. Identify those areas of work for which there are minority businesses, as requested.
   b. Make available to interested parties a list of prospective minority business contractors and subcontractors.
   c. Assist in the determination of technical assistance needed by minority business contractors.

   In addition to being responsible for the certification/verification of minority businesses that want to participate in the State construction program, the HUB Office will:
   (1) Maintain a current list of minority businesses. The list shall include the areas of work in which each minority business is interested.
   (2) Inform minority businesses on how to identify and obtain contracting and subcontracting opportunities through the State Construction Office and other public entities.
   (3) Inform minority businesses of the contracting and subcontracting process for public construction building projects.
   (4) Work with the North Carolina trade and professional organizations to improve the ability of minority businesses to compete in the State construction projects.
   (5) The HUB Office also oversees the minority business program by:
      a. Monitoring compliance with the program requirements.
      b. Assisting in the implementation of training and technical assistance programs.
      c. Identifying and implementing outreach efforts to increase the utilization of minority businesses.
      d. Reporting the results of minority business utilization to the Secretary of the Department of Administration, the Governor, and the General Assembly.

2. State Construction Office
   The State Construction Office will be responsible for the following:

   a. Furnish to the HUB Office a minimum of twenty-one days prior to the bid opening the following:
      (1) Project description and location;
      (2) Locations where bidding documents may be reviewed;
      (3) Name of a representative of the owner who can be contacted during the advertising period to advise who the prospective bidders are;
      (4) Date, time and location of the bid opening.
      (5) Date, time and location of prebid conference, if scheduled.

   b. Attending scheduled prebid conference, if necessary, to clarify requirements of the general statutes regarding minority-business participation, including the bidders' responsibilities.

c. Reviewing the apparent low bidders' statutory compliance with the requirements listed in the proposal, that must be complied with, if the bid is to be considered as responsive, prior to award of contracts. The State reserves the right to reject any or all bids and to waive informalities.
d. Reviewing of minority business requirements at Preconstruction conference**.**
e. Monitoring of contractors' compliance with minority business requirements in the contract documents during construction.
f. Provide statistical data and required reports to the HUB Office.
g. Resolve any protest and disputes arising after implementation of the plan, in conjunction with the HUB Office.

3. Owner
Before awarding a contract, owner shall do the following:

a. Develop and implement a minority business participation outreach plan to identify minority businesses that can perform public building projects and to implement outreach efforts to encourage minority business participation in these projects to include education, recruitment, and interaction between minority businesses and non-minority businesses.
b. Attend the scheduled prebid conference.
c. At least 10 days prior to the scheduled day of bid opening, notify minority businesses that have requested notices from the public entity for public construction or repair work and minority businesses that otherwise indicated to the Office for Historically Underutilized Businesses an interest in the type of work being bid or the potential contracting opportunities listed in the proposal. The notification shall include the following:
    1. A description of the work for which the bid is being solicited.
    2. The date, time, and location where bids are to be submitted.
    3. The name of the individual within the owner's organization who will be available to answer questions about the project.
    4. Where bid documents may be reviewed.
    5. Any special requirements that may exist.
d. Utilize other media, as appropriate, likely to inform potential minority businesses of the bid being sought.
e. Maintain documentation of any contacts, correspondence, or conversation with minority business firms made in an attempt to meet the goals.
f. Review, jointly with the designer, all requirements of G.S. 143-128.2(c) and G.S. 143-128.2(f) – (i.e. bidders' proposals for identification of the minority businesses that will be utilized with corresponding total dollar value of the bid and affidavit listing good faith efforts, or affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) - prior to recommendation of award to the State Construction Office.
g. Evaluate documentation to determine good faith effort has been achieved for minority business utilization prior to recommendation of award to State Construction Office.
h. Review prime contractors' pay applications for compliance with minority business utilization commitments prior to payment**.**
i. Make documentation showing evidence of implementation of Owner's responsibilities available for review by State Construction Office and HUB Office, upon request

4. Designer
Under the single-prime bidding, separate prime bidding, construction manager at risk, or alternative contracting method, the designer will:

a. Attend the scheduled prebid conference to explain minority business requirements to the prospective bidders.
b. Assist the owner to identify and notify prospective minority business prime and subcontractors of potential contracting opportunities.
c. Maintain documentation of any contacts, correspondence, or conversation with minority business firms made in an attempt to meet the goals.
d. Review jointly with the owner, all requirements of G.S. 143-128.2(c) and G.S.143-128.2(f) – (i.e. bidders' proposals for identification of the minority businesses that will be utilized with

corresponding total dollar value of the bid and affidavit listing Good Faith Efforts, or affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) - prior to recommendation of award.

e. During construction phase of the project, review "MBE Documentation for Contract Payment" – (Appendix E) for compliance with minority business utilization commitments. Submit Appendix E form with monthly pay applications to the owner and forward copies to the State Construction Office.
f. Make documentation showing evidence of implementation of Designer's responsibilities available for review by State Construction Office and HUB Office, upon request.

5. Prime Contractor(s), CM at Risk, and Its First-Tier Subcontractors
Under the single-prime bidding, the separate-prime biding, construction manager at risk and alternative contracting methods, contractor(s) will:

a. Attend the scheduled prebid conference.
b. Identify or determine those work areas of a subcontract where minority businesses may have an interest in performing subcontract work.
c. At least ten (10) days prior to the scheduled day of bid opening, notify minority businesses of potential subcontracting opportunities listed in the proposal. The notification will include the following:
   (1) A description of the work for which the subbid is being solicited.
   (2) The date, time and location where subbids are to be submitted.
   (3) The name of the individual within the company who will be available to answer questions about the project.
   (4) Where bid documents may be reviewed.
   (5) Any special requirements that may exist, such as insurance, licenses, bonds and financial arrangements.

   If there are more than three (3) minority businesses in the general locality of the project who offer similar contracting or subcontracting services in the specific trade, the contractor(s) shall notify three (3), but may contact more, if the contractor(s) so desires.
d. During the bidding process, comply with the contractor(s) requirements listed in the proposal for minority participation.
e. Identify on the bid**,** the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit listing good faith efforts as required by G.S. 143-128.2(c) and G.S. 143-128.2(f).
f. Make documentation showing evidence of implementation of PM, CM-at-Risk and First-Tier Subcontractor responsibilities available for review by State Construction Office and HUB Office, upon request.
g. Upon being named the apparent low bidder, the Bidder shall provide one of the following: (1) an affidavit (Affidavit C) that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal; (2) if the percentage is not equal to the applicable goal, then documentation of all good faith efforts taken to meet the goal. Failure to comply with these requirements is grounds for rejection of the bid and award to the next lowest responsible and responsive bidder.
h. The contractor(s) shall identify the name(s) of minority business subcontractor(s) and corresponding dollar amount of work on the schedule of values. The schedule of values shall be provided as required in Article 31 of the General Conditions of the Contract to facilitate payments to the subcontractors.
i. The contractor(s) shall submit with each monthly pay request(s) and final payment(s), "MBE Documentation for Contract Payment" – (Appendix E), for designer's review.
j. During the construction of a project, at any time**,** if it becomes necessary to replace a minority business subcontractor, immediately advise the owner, State Construction Office, and the Director of the HUB Office in writing**,** of the circumstances involved. The prime contractor shall make a good faith effort to replace a minority business subcontractor with another minority business subcontractor.

k. If during the construction of a project additional subcontracting opportunities become available, make a good faith effort to solicit subbids from minority businesses.
l. It is the intent of these requirements apply to all contractors performing as prime contractor and first tier subcontractor under construction manager at risk on state projects.

6. Minority Business Responsibilities
While minority businesses are not required to become certified in order to participate in the State construction projects, it is recommended that they become certified and should take advantage of the appropriate technical assistance that is made available. In addition, minority businesses who are contacted by owners or bidders must respond promptly whether or not they wish to submit a bid.

SECTION 4: DISPUTE PROCEDURES
It is the policy of this state that disputes that involves a person's rights, duties or privileges, should be settled through informal procedures. To that end, minority business disputes arising under these guidelines should be resolved as governed under G.S. 143-128(g).

SECTION 5: These guidelines shall apply upon promulgation on state construction projects. Copies of these guidelines may be obtained from the Department of Administration, State Construction Office, (physical address) 301 North Wilmington Street, Suite 450, NC Education Building, Raleigh, North Carolina, 27601-2827, (mail address) 1307 Mail Service Center, Raleigh, North Carolina, 27699-1307, phone (919) 807-4100, Website: www.nc-sco.com

SECTION 6: In addition to these guidelines, there will be issued with each construction bid package provisions for contractual compliance providing minority business participation in the state construction program.

MINORITY BUSINESS CONTRACT PROVISIONS (CONSTRUCTION)

APPLICATION:

The **Guidelines for Recruitment and Selection of Minority Businesses for Participation in State Construction Contracts** are hereby made a part of these contract documents. These guidelines shall apply to all contractors regardless of ownership. Copies of these guidelines may be obtained from the Department of Administration, State Construction Office, (physical address) 301 North Wilmington Street, Suite 450, NC Education Building, Raleigh, North Carolina, 27601-2827, (mail address) 1307 Mail Service Center, Raleigh, North Carolina, 27699-1307, phone (919) 807-4100, Website: http://www.nc-sco.com

MINORITY BUSINESS SUBCONTRACT GOALS:

The goals for participation by minority firms as subcontractors on this project have been set at 10%.

The bidder must identify on its bid, the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit (Affidavit A) listing good faith efforts **or** affidavit (Affidavit B) of self-performance of work, if the bidder will perform work under contract by its own workforce, as required by G.S. 143-128.2(c) and G.S. 143-128.2(f).

The lowest responsible, responsive bidder must provide Affidavit C, that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal.

OR

Provide Affidavit D, that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, **with documentation of Good Faith Effort, if the percentage is not equal to the applicable goal.**

OR

Provide Affidavit B, which includes sufficient information for the State to determine that the bidder does not customarily subcontract work on this type project.

The above information must be provided as required. Failure to submit these documents is grounds for rejection of the bid.

MINIMUM COMPLIANCE REQUIREMENTS:

All written statements, affidavits or intentions made by the Bidder shall become a part of the agreement between the Contractor and the State for performance of this contract. Failure to comply with any of these statements, affidavits or intentions, or with the minority business Guidelines shall constitute a breach of the contract. A finding by the State that any information submitted either prior to award of the contract or during the performance of the contract is inaccurate, false or incomplete, shall also constitute a breach of the contract. Any such breach may result in termination of the contract in accordance with the termination provisions contained in the contract. It shall be solely at the option of the State whether to terminate the contract for breach.

In determining whether a contractor has made Good Faith Efforts, the State will evaluate all efforts made by the Contractor and will determine compliance in regard to quantity, intensity, and results of these efforts. Good Faith Efforts include:

(1) Contacting minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor or available on State or local government maintained lists at least 10 days before the bid or proposal date and notifying them of the nature and scope of the work to be performed.

(2) Making the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bid or proposals are due.

(3) Breaking down or combining elements of work into economically feasible units to facilitate minority participation.

(4) Working with minority trade, community, or contractor organizations identified by the Office for Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.

(5) Attending any prebid meetings scheduled by the public owner.

(6) Providing assistance in getting required bonding or insurance or providing alternatives to bonding or insurance for subcontractors.

(7) Negotiating in good faith with interested minority businesses and not rejecting them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.

(8) Providing assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisting minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.

(9) Negotiating joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.

(10) Providing quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

APPENDIX E

MBE DOCUMENTATION FOR CONTRACT PAYMENTS

Prime Contractor/Architect: _____

Address & Phone: _____

Project Name: _____

Pay Application #: _____ Period: _____

The following is a list of payments made to Minority Business Enterprises on this project for the above-mentioned period.

MBE FIRM NAME	* INDICATE TYPE OF MBE	AMOUNT PAID THIS MONTH	TOTAL PAYMENTS TO DATE	TOTAL AMOUNT COMMITTED

*Minority categories: Black, African American (B), Hispanic (H), Asian American (A), American Indian (I), Female (F), Social and Economically Disadvantage (D)

Date: _____ Approved/Certified By: _____
Name

_____
Title

_____
Signature

SUBMIT WITH EACH PAY REQUEST & FINAL PAYMENT

(Revised on 3/14/2003)

FORM OF CONSTRUCTION CONTRACT

(ALL PRIME CONTRACTS)

THIS AGREEMENT, made the _____ day of _____ in the year of 20__ by and between

_____

hereinafter called the Party of the First Part and the State of North Carolina, through the

_____

hereinafter called the Party of the Second Part.

WITNESSETH:

That the Party of the First Part and the Party of the Second Part for the consideration herein named agree as follows:

1. Scope of Work: The Party of the First Part shall furnish and deliver all of the materials, and perform all of the work in the manner and form as provided by the following enumerated plans, specifications and documents, which are attached hereto and made a part thereof as if fully contained herein: advertisement; Instructions to Bidders; General Conditions; Supplementary General Conditions; specifications; accepted proposal; contract; performance bond; payment bond; power of attorney; workmen's compensation; public liability; property damage and builder's risk insurance certificates; approval of attorney general; certificate by the Office of State Budget and Management, and drawings, titled:

_____

_____

_____

Consisting of the following sheets:

_____

_____

_____

_____

Dated: _____ and the following addenda:

Addendum No _____ Dated: _____ Addendum No. _____ Dated: _____

Addendum No _____ Dated: _____ Addendum No. _____ Dated: _____

Addendum No _____ Dated: _____ Addendum No. _____ Dated: _____

Addendum No _____ Dated: _____ Addendum No. _____ Dated: _____

2. That the Party of the First Part shall commence work to be performed under this agreement on a date to be specified in a written order of the Party of the Second Part and shall fully complete all work hereunder within _____ consecutive calendar days from said date. For each day in excess thereof, liquidated damages shall be as stated in Supplementary General Conditions. The Party of the First Part, as one of the

considerations for the awarding of this contract, shall furnish to the Party of the Second Part a construction schedule setting forth planned progress of the project broken down by the various divisions or part of the work and by calendar days as outlined in Article 14 of the General Conditions of the Contract.

3. The Party of the Second Part hereby agrees to pay to the Party of the First Part for the faithful performance of this agreement, subject to additions and deductions as provided in the specifications or proposal, in lawful money of the United States as follows:

_____

_____($_____).

Summary of Contract Award:

4. In accordance with Article 31 and Article 32 of the General Conditions of the Contract, the Party of the Second Part shall review, and if approved, process the Party of the First Party's pay request within 30 days upon receipt from the Designer. The Party of the Second Part, after reviewing and approving said pay request, shall make payments to the Party of the First Part on the basis of a duly certified and approved estimate of work performed during the preceding calendar month by the First Party, less five percent (5%) of the amount of such estimate which is to be retained by the Second Party until all work has been performed strictly in accordance with this agreement and until such work has been accepted by the Second Party. The Second Party may elect to waive retainage requirements after 50 percent of the work has been satisfactorily completed on schedule as referred to in Article 31 of the General Conditions.

5. Upon submission by the First Party of evidence satisfactory to the Second Party that all payrolls, material bills and other costs incurred by the First Party in connection with the construction of the work have been paid in full, final payment on account of this agreement shall be made within thirty (30) days after the completion by the First Party of all work covered by this agreement and the acceptance of such work by the Second Party.

6. It is further mutually agreed between the parties hereto that if at any time after the execution of this agreement and the surety bonds hereto attached for its faithful performance, the Second Party shall deem the surety or sureties upon such bonds to be unsatisfactory, or if, for any reason, such bonds cease to be adequate to cover the performance of the work, the First Party shall, at its expense, within five (5) days after the receipt of notice from the Second Party so to do, furnish an additional bond or bonds in such form and amount, and with such surety or sureties as shall be satisfactory to the Second Party. In such event no further payment to the First Party shall be deemed to be due under this agreement until such new or additional security for the faithful performance of the work shall be furnished in manner and form satisfactory to the Second Party.

7. The Party of the First Part attest that it and all of its subcontractors have fully complied with all requirements of NCGS 64 Article 2 in regards to E-Verification as required by Section 2.(c) of Session Law 2013-418, codified as N.C. Gen. Stat. § 143-129(j).

IN WITNESS WHEREOF, the Parties hereto have executed this agreement on the day and date first above written in _____ counterparts, each of which shall without proof or accounting for other counterparts, be deemed an original contract.

Witness:

_____
Contractor: (Trade or Corporate Name)

_____
(Proprietorship or Partnership)

By: _____

Title: _____
(Owner, Partner, or Corp. Pres. or Vice Pres. only)

Attest: (Corporation)

By: _____

Title: _____
(Corp. Sec. or Asst. Sec. only)

The State of North Carolina through*

(CORPORATE SEAL)

_____
(Agency, Department or Institution)

Witness:

_____

By:_____

Title: _____

FORM OF PERFORMANCE BOND

Date of Contract: _____

Date of Execution: _____

Name of Principal (Contractor) _____

Name of Surety: _____

Name of Contracting Body: _____

Amount of Bond: _____

Project

KNOW ALL MEN BY THESE PRESENTS, that we, the principal and surety above named, are held and firmly bound unto the above named contracting body, hereinafter called the contracting body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind, ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the contracting body, identified as shown above and hereto attached:

NOW, THEREFORE, if the principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the contracting body, with or without notice to the surety, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Executed in _____ counterparts.

Witness:

_____
(Proprietorship or Partnership)

Attest: (Corporation)

By: _____

Title: _____
(Corp. Sec. or Asst. Sec. only)

(Corporate Seal)

_____
Contractor: (Trade or Corporate Name)

By: _____

Title: _____
(Owner, Partner, or Corp. Pres. or Vice Pres. only)

_____
(Surety Company)

Witness:

_____

By: _____

Title: _____
(Attorney in Fact)

Countersigned:

_____

_____
(N.C. Licensed Resident Agent)

_____

_____
Name and Address-Surety Agency

_____

_____
Surety Company Name and N.C. Regional or Branch Office Address

(Surety Corporate Seal)

FORM OF PAYMENT BOND

Date of Contract: _____

Date of Execution: _____

Name of Principal (Contractor) _____

Name of Surety: _____

Name of Contracting Body: _____

Amount of Bond: _____

Project _____

KNOW ALL MEN BY THESE PRESENTS, that we, the principal and surety above named, are held and firmly bound unto the above named contracting body, hereinafter called the contracting body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the contracting body identified as shown above and hereto attached:

NOW, THEREFORE, if the principal shall promptly make payment to all persons supplying labor/material in the prosecution of the work provided for in said contract, and any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Executed in _____ counterparts.

Witness:

_____
Contractor: (Trade or Corporate Name)

_____
(Proprietorship or Partnership)

By: _____

Attest: (Corporation)

Title_____
(Owner, Partner, or Corp. Pres. or Vice Pres. only)

By: _____

Title: _____
(Corp. Sec. or Asst. Sec.. only)

(Corporate Seal)

_____
(Surety Company)

Witness:

By: _____

_____

Title: _____
(Attorney in Fact)

Countersigned:

_____

(Surety Corporate Seal)

_____
(N.C. Licensed Resident Agent)

_____

_____
Name and Address-Surety Agency

_____

_____
Surety Company Name and N.C.
Regional or Branch Office Address

Sheet for Attaching Power of Attorney

Sheet for Attaching Insurance Certificates

APPROVAL OF THE ATTORNEY GENERAL

CERTIFICATION BY THE OFFICE OF STATE BUDGET AND MANAGEMENT

Provision for the payment of money to fall due and payable by the

_____

under this agreement has been provided for by allocation made and is available for the purpose of carrying out this agreement.

This _____day of _____ 20___.

Signed _____
Budget Officer

INSTRUCTIONS TO BIDDERS

AND

GENERAL CONDITIONS OF THE CONTRACT

STANDARD FORM FOR CONSTRUCTION PROJECTS

STATE CONSTRUCTION OFFICE

NORTH CAROLINA

DEPARTMENT OF ADMINISTRATION

Form OC-15

This document is intended for use on State capital construction projects and shall not be used on any project that is not reviewed and approved by the State Construction Office. Extensive modification to the General Conditions by means of "Supplementary General Conditions" is strongly discouraged. State agencies and institutions may include special requirements in "Division 1 – General Requirements" of the specifications, where they do not conflict with the General Conditions.

Twenty Fourth Edition January 2013
Revision 1 - May 2024: Article 23.b

INSTRUCTIONS TO BIDDERS

For a proposal to be considered it must be in accordance with the following instructions:

1. PROPOSALS

Proposals must be made in strict accordance with the Form of Proposal provided therefor, and all blank spaces for bids, alternates, and unit prices applicable to bidder's work shall be properly filled in. When requested alternates are not bid, the proposer shall so indicate by the words "No Bid". Any blanks shall also be interpreted as "No Bid".The bidder agrees that bid on Form of Proposal detached from specifications will be considered and will have the same force and effect as if attached thereto. Photocopied or faxed proposals will not be considered. Numbers shall be stated both in writing and in figures for the base bids and alternates. If figures and writing differ, the written number will supersede the figures.

Any modifications to the Form of Proposal (including alternates and/or unit prices) will disqualify the bid and may cause the bid to be rejected.

The bidder shall fill in the Form of Proposal as follows:

a. If the documents are executed by a sole owner, that fact shall be evidenced by the word "Owner" appearing after the name of the person executing them.

b. If the documents are executed by a partnership, that fact shall be evidenced by the word "Co-Partner" appearing after the name of the partner executing them.

c. If the documents are executed on the part of a corporation, they shall be executed by either the president or the vice president and attested by the secretary or assistant secretary in either case, and the title of the office of such persons shall appear after their signatures. The seal of the corporation shall be impressed on each signature page of the documents.

d. If the proposal is made by a joint venture, it shall be executed by each member of the joint venture in the above form for sole owner, partnership or corporation, whichever form is applicable.

e. All signatures shall be properly witnessed.

f. If the contractor's license of a bidder is held by a person other than an owner, partner or officer of a firm, then the licensee shall also sign and be a party to the proposal. The title "Licensee" shall appear under his/her signature.

Proposals should be addressed as indicated in the Advertisement for Bids and be delivered, enclosed in an opaque sealed envelope, marked "Proposal" and bearing the title of the work, name of the bidder, and the contractor's license number of the bidder. Bidders should clearly mark on the outside of the bid envelope which contract(s) they are bidding.

Bidder shall identify on the bid**,** the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit listing good faith efforts or an affidavit indicating work under contract will be self-performed, as required by G.S. 143-128.2(c) and G.S. 143-128.2(f). Failure to comply with these requirements is grounds for rejection of the bid.

For projects bid in the single-prime alternative, the names and license numbers of major subcontractors shall be listed on the proposal form.

It shall be the specific responsibility of the bidder to deliver his bid to the proper official at the selected place and prior to the announced time for the opening of bids. Later delivery of a bid for any reason, including delivery by any delivery service, shall disqualify the bid.

Unit prices quoted in the proposal shall include overhead and profit and shall be the full compensation for the contractor's cost involved in the work. See General Conditions, Article 19c-1.

2. EXAMINATION OF CONDITIONS

It is understood and mutually agreed that by submitting a bid the bidder acknowledges that he has carefully examined all documents pertaining to the work, the location, accessibility and general character of the site of the work and all existing buildings and structures within and adjacent to the site, and has satisfied himself as to the nature of the work, the condition of existing buildings and structures, the conformation of the ground, the character, quality and quantity of the material to be encountered, the character of the equipment, machinery, plant and any other facilities needed preliminary to and during prosecution of the work, the general and local conditions, the construction hazards, and all other matters, including, but not limited to, the labor situation which can in any way affect the work under the contract, and including all safety measures required by the Occupational Safety and Health Act of 1970 and all rules and regulations issued pursuant thereto. It is further mutually agreed that by submitting a proposal the bidder acknowledges that he has satisfied himself as to the feasibility and meaning of the plans, drawings, specifications and other contract documents for the construction of the work and that he accepts all the terms, conditions and stipulations contained therein; and that he is prepared to work in cooperation with other contractors performing work on the site.

Reference is made to contract documents for the identification of those surveys and investigation reports of subsurface or latent physical conditions at the site or otherwise affecting performance of the work which have been relied upon by the designer in preparing the documents. The owner will make copies of all such surveys and reports available to the bidder upon request.

Each bidder may, at his own expense, make such additional surveys and investigations as he may deem necessary to determine his bid price for the performance of the work. Any on-site investigation shall be done at the convenience of the owner. Any reasonable request for access to the site will be honored by the owner.

3. BULLETINS AND ADDENDA

Any addenda to specifications issued during the time of bidding are to be considered covered in the proposal and in closing a contract they will become a part thereof. It shall be the bidder’s responsibility to ascertain prior to bid time the addenda issued and to see that his bid includes any changes thereby required.

Should the bidder find discrepancies in, or omission from, the drawings or documents or should he be in doubt as to their meaning, he shall at once notify the designer who will send written instructions in the form of addenda to all bidders. Notification should be no later than seven (7) days prior to the date set for receipt of bids. Neither the owner nor the designer will be responsible for any oral instructions.

All addenda should be acknowledged by the bidder(s) on the Form of Proposal. However, even if not acknowledged, by submitting a bid, the bidder has certified that he has reviewed all issued addenda and has included all costs associated within his bid.

4. BID SECURITY

Each proposal shall be accompanied by a cash deposit or a certified check drawn on some bank or trust company insured by the Federal Deposit Insurance Corporation, or a bid bond in an amount equal to not less than five percent (5%) of the proposal, said deposit to be retained by the owner as liquidated damages in event of failure of the successful bidder to execute the contract within ten (10) days after the award or to give satisfactory surety as required by law (G.S. 143-129).

Bid bond shall be conditioned that the surety will, upon demand, forthwith make payment to the obligee upon said bond if the bidder fails to execute the contract. The owner may retain bid securities of any bidder(s) who may have a reasonable chance of award of contract for the full duration of time stated in the Notice to Bidders. Other bid securities may be released sooner, at the discretion of the owner. All bid securities (cash or certified checks) shall be returned to the bidders promptly after award of contracts, and no later then seven (7) days after expiration of the holding period stated in the Notice to Bidders. Standard Form of Bid Bond is included in these specifications and shall be used.

5. RECEIPT OF BIDS

Bids shall be received in strict accordance with requirements of the General Statutes of North Carolina. Bid security shall be required as prescribed by statute. Prior to the closing of the bid, the bidder will be permitted to change or withdraw his bid. Guidelines for opening of public construction bids are available from the State Construction Office.

6. OPENING OF BIDS

Upon opening, all bids shall be read aloud. Once bidding is closed, there shall not be any withdrawal of bids by any bidder and no bids may be returned by the designer to any bidder. After the opening of bids, no bid may be withdrawn, except under the provisions of General Statute 143-129.1, for a period of thirty days unless otherwise specified. Should the successful bidder default and fail to execute a contract, the contract may be awarded to the next lowest and responsible bidder. The owner reserves the unqualified right to reject any and all bids. Reasons for rejection may include, but shall not be limited to, the following:

a. If the Form of Proposal furnished to the bidder is not used or is altered.

b. If the bidder fails to insert a price for all bid items, alternate and unit prices requested.

c. If the bidder adds any provisions reserving the right to accept or reject any award.

d. If there are unauthorized additions or conditional bids, or irregularities of any kind which tend to make the proposal incomplete, indefinite or ambiguous as to its meaning.

e. If the bidder fails to complete the proposal form where information is requested so the bid may be properly evaluated by the owner.

f. If the unit prices contained in the bid schedule are unacceptable to the owner and the State Construction Office.

g. If the bidder fails to comply with other instructions stated herein.

7. BID EVALUATION

The award of the contract will be made to the lowest responsible bidder as soon as practical. The owner may award on the basis of the base bid and any alternates the owner chooses.

Before awarding a contract, the owner may require the apparent low bidder to qualify himself to be a responsible bidder by furnishing any or all of the following data:

a. The latest financial statement showing assets and liabilities of the company or other information satisfactory to the owner.

b. A listing of completed projects of similar size.

c. Permanent name and address of place of business.

d. The number of regular employees of the organization and length of time the organization has been in business under present name.

e. The name and home office address of the surety proposed and the name and address of the responsible local claim agent.

f. The names of members of the firms who hold appropriate trade licenses, together with license numbers.

g. If prequalified, contractor info will be reviewed and evaluated comparatively to submitted prequalification package.

Failure or refusal to furnish any of the above information, if requested, shall constitute a basis for disqualification of any bidder.

In determining the lowest responsible, responsive bidder, the owner shall take into consideration the bidder's compliance with the requirements of G.S. 143-128.2(c), the past performance of the bidder on construction contracts for the State with particular concern given to completion times, quality of work, cooperation with other contractors, and cooperation with the designer and owner. Failure of the low bidder to furnish affidavit and/or documentation as required by G.S. 143-128.2(c) shall constitute a basis for disqualification of the bid.

Should the owner adjudge that the apparent low bidder is not the lowest responsible, responsive bidder by virtue of the above information, said apparent low bidder will be so notified and his bid security shall be returned to him.

8. PERFORMANCE BOND

The successful bidder, upon award of contract, shall furnish a performance bond in an amount equal to 100 percent of the contract price. See Article 35, General Conditions.

9. PAYMENT BOND

The successful bidder, upon award of contract, shall furnish a payment bond in an amount equal to 100 percent of the contract price. See Article 35, General Conditions.

10. PAYMENTS

Payments to the successful bidders (contractors) will be made on the basis of monthly estimates. See Article 31, General Conditions.

11. PRE-BID CONFERENCE

Prior to the date set for receiving bids, the Designer may arrange and conduct a Pre-Bid Conference for all prospective bidders. The purpose of this conference is to review project requirements and to respond to questions from prospective bidders and their subcontractors or material suppliers related to the intent of bid documents. Attendance by prospective bidders shall be as required by the "Notice to Bidders".

12. SUBSTITUTIONS

In accordance with the provisions of G.S. 133-3, material, product, or equipment substitutions proposed by the bidders to those specified herein can only be considered during the bidding phase until ten (10) days prior to the receipt of bids when submitted to the Designer with sufficient data to confirm material, product, or equipment equality. Proposed substitutions submitted after this time will be considered only as potential change order.

Submittals for proposed substitutions shall include the following information:

a. Name, address, and telephone number of manufacturer and supplier as appropriate.

b. Trade name, model or catalog designation.

c. Product data including performance and test data, reference standards, and technical descriptions of material, product, or equipment. Include color samples and samples of available finishes as appropriate.

d. Detailed comparison with specified products including performance capabilities, warranties, and test results.

e. Other pertinent data including data requested by the Designer to confirm product equality.

If a proposed material, product, or equipment substitution is deemed equal by the Designer to those specified, all bidders of record will be notified by Addendum.

GENERAL CONDITIONS OF THE CONTRACT

TABLE OF CONTENTS

ARTICLE 1 - DEFINITIONS

a. The **contract documents** consist of the Notice to Bidders; Instructions to Bidders; General Conditions of the Contract; special conditions if applicable; Supplementary General Conditions; the drawing and specifications, including all bulletins, addenda or other modifications of the drawings and specifications incorporated into the documents prior to their execution; the proposal; the contract; the performance bond; the payment bond; insurance certificates; the approval of the attorney general; and the certificate of the Office of State Budget and Management. All of these items together form the contract.

b. The **owner** is the State of North Carolina through the agency named in the contract.

c. The **designer(s)** are those referred to within this contract, or their authorized representatives. The Designer(s), as referred to herein, shall mean architect and/or engineer. They will be referred to hereinafter as if each were of the singular number, masculine gender.

d. The **contractor**, as referred to hereinafter, shall be deemed to be either of the several contracting parties called the "Party of the First Part" in either of the several contracts in connection with the total project. Where, in special instances hereinafter, a particular contractor is intended, an adjective precedes the word "contractor," as "general," "heating," etc. For the purposes of a single prime contract, the term Contractor shall be deemed to be the single contracting entity identified as the "Party of the First Part" in the single Construction Contract. Any references or adjectives that name or infer multiple prime contractors shall be interpreted to mean the single prime Contractor.

e. A **subcontractor**, as the term is used herein, shall be understood to be one who has entered into a direct contract with a contractor, and includes one who furnishes materials worked to a special design in accordance with plans and specifications covered by the contract, but does not include one who only sells or furnishes materials not requiring work so described or detailed.

f. **Written notice** shall be defined as notice in writing delivered in person to the contractor, or to a partner of the firm in the case of a partnership, or to a member of the contracting organization, or to an officer of the organization in the case of a corporation, or sent to the last known business address of the contracting organization by registered mail.

g. **Work**, as used herein as a noun, is intended to include materials, labor, and workmanship of the appropriate contractor.

h. The **project** is the total construction work to be performed under the contract documents by the several contractors.

i **Project Expediter,** as used herein, is an entity stated in the contract documents, designated to effectively facilitate scheduling and coordination of work activities. See Article 14(f) for responsibilities of a Project Expediter. **For the purposes of a single prime contract, the single prime contractor shall be designated as the Project Expediter.**

j. **Change order**, as used herein, shall mean a written order to the contractor subsequent to the signing of the contract authorizing a change in the contract. The change order shall be signed by the contractor, designer and the owner, and approved by the State Construction Office, in that order (Article 19).

k. **Field Order,** as used herein, shall mean a written approval for the contractor to proceed with the work requested by owner prior to issuance of a formal Change Order. The field order shall be signed by the contractor, designer, owner, and State Construction Office.

l. **Time of completion**, as stated in the contract documents, is to be interpreted as consecutive calendar days measured from the date established in the written Notice to Proceed, or such other date as may be established herein (Article 23).

m. **Liquidated damages,** as stated in the contract documents [, is an amount reasonably estimated in advance to cover the consequential damages associated with the Owner's economic loss in not being able to use the Project for its intended purposes at the end of the contract's completion date as amended by change order, if any, by reason of failure of the contractor(s) to complete the work within the time specified. Liquidated damages does not include the Owner's extended contract administration costs (including but not limited to additional fees for architectural and engineering services, testing services, inspection services, commissioning services, etc.), such other damages directly resulting from delays caused solely by the contractor, or consequential damages that the Owner identified in the bid documents that may be impacted by any delay caused soley by the Contractor (e.g., if a multi-phased project-subsequent phases, delays in start other projects that are dependent on the completion of this Project, extension of leases and/or maintenance agreements for other facilities).

n. **Surety**, as used herein, shall mean the bonding company or corporate body which is bound with and for the contractor, and which engages to be responsible for the contractor and his acceptable performance of the work.

o. **Routine written communications between the Designer and the Contractor** are any communication other than a "request for information" provided in letter, memo, or transmittal format, sent by mail, courier, electronic mail, or facsimile. Such communications can not be identified as "request for information".

p. **Clarification or Request for information (RFI)** is a request from the Contractor seeking an interpretation or clarification by the Designer relative to the contract documents. The RFI, which shall be labeled (RFI), shall clearly and concisely set forth the issue or item requiring clarification or interpretation and why the response is needed. The RFI must set forth the Contractor's interpretation or understanding of the contract documents requirements in question, along with reasons for such an understanding.

q. **Approval** means written or imprinted acknowledgement that materials, equipment or methods of construction are acceptable for use in the work**.**

r. **Inspection** shall mean examination or observation of work completed or in progress to determine its compliance with contract documents.

s. **"Equal to" or "approved equal"** shall mean materials, products, equipment, assemblies, or installation methods considered equal by the bidder in all characteristics (physical, functional, and aesthetic) to those specified in the contract documents. Acceptance of equal is subject to approval of Designer and owner.

t. **"Substitution" or "substitute"** shall mean materials, products, equipment, assemblies, or installation methods deviating in at least one characteristic (physical, functional, or aesthetic) from those specified, but which in the opinion of the bidder would improve competition and/or enhance the finished installation. Acceptance of substitution is subject to the approval of the Designer and owner.

u. **Provide** shall mean furnish and install complete in place, new, clean, operational, and ready for use.

v. **Indicated and shown** shall mean provide as detailed, or called for, and reasonably implied in the contract documents.

w. **Special inspector** is one who inspects materials, installation, fabrication, erection or placement of components and connections requiring special expertise to ensure compliance with the approved construction documents and referenced standards.

x. **Commissioning** is a quality assurance process that verifies and documents that building components and systems operate in accordance to the owner's project requirements and the project design documents.

y. **Designer Final Inspection** is the inspection performed by the design team to determine the completeness of the project in accordance with approved plans and specifications. This inspection occurs prior to SCO final inspection.

z. **SCO Final Inspection** is the inspection performed by the State Construction Office to determine the completeness of the project in accordance with NC Building Codes and approved plans and specifications.

aa. **Beneficial Occupancy** is requested by the owner and is occupancy or partial occupancy of the building after all life safety items have been completed as determined by the State Construction Office. Life safety items include but not limited to fire alarm, sprinkler, egress and exit lighting, fire rated walls, egress paths and security.

bb. Final Acceptance is the date in which the State Construction Office accepts the construction as totally complete. This includes the SCO Final Inspection and certification by the designer that all punch lists are completed.

ARTICLE 2 - INTENT AND EXECUTION OF DOCUMENTS

a. The drawings and specifications are complementary, one to the other, and that which is shown on the drawings or called for in the specifications shall be as binding as if it were both called for and shown. The intent of the drawings and specifications is to establish the scope of all labor, materials, transportation, equipment, and any and all other things necessary to provide a bid for a complete job. In case of discrepancy or disagreement in the contract documents, the order of precedence shall be: Form of Contract, specifications, large-scale detail drawings, small-scale drawings.

b. The wording of the specifications shall be interpreted in accordance with common usage of the language except that words having a commonly used technical or trade meaning shall be so interpreted in preference to other meanings.

c. The contractor shall execute each copy of the proposal, contract, performance bond and payment bond as follows:

1. If the documents are executed by a sole owner, that fact shall be evidenced by the word "Owner" appearing after the name of the person executing them.

2. If the documents are executed by a partnership, that fact shall be evidenced by the word "Co-Partner" appearing after the name of the partner executing them.

3. If the documents are executed on the part of a corporation, they shall be executed by either the president or the vice president and attested by the secretary or assistant secretary in either case, and the title of the office of such persons shall appear after their signatures. The seal of the corporation shall be impressed on each signature page of the documents.

4. If the documents are made by a joint venture, they shall be executed by each member of the joint venture in the above form for sole owner, partnership or corporation, whichever form is applicable to each particular member.

5. All signatures shall be properly witnessed.

6. If the contractor's license is held by a person other than an owner, partner or officer of a firm, then the licensee shall also sign and be a party to the contract. The title "Licensee" shall appear under his/her signature.

7. The bonds shall be executed by an attorney-in-fact. There shall be attached to each copy of the bond a certified copy of power of attorney properly executed and dated.

8. Each copy of the bonds shall be countersigned by an authorized individual agent of the bonding company licensed to do business in North Carolina. The title "Licensed Resident Agent" shall appear after the signature.

9. The seal of the bonding company shall be impressed on each signature page of the bonds.

10. The contractor's signature on the performance bond and the payment bond shall correspond with that on the contract. The date of performance and payment bond shall not be prior to the date of the contract.

ARTICLE 3 - CLARIFICATIONS AND DETAIL DRAWINGS

a. In such cases where the nature of the work requires clarification by the designer, such clarification shall be furnished by the designer with reasonable promptness by means of written instructions or detail drawings, or both. Clarifications and drawings shall be consistent with the intent of contract documents, and shall become a part thereof.

b. The contractor(s) and the designer shall prepare, if deemed necessary, a schedule fixing dates upon which foreseeable clarifications will be required. The schedule will be subject to addition or change in accordance with progress of the work. The designer shall furnish drawings or clarifications in accordance with that schedule. The contractor shall not proceed with the work without such detail drawings and/or written clarifications.

ARTICLE 4 - COPIES OF DRAWINGS AND SPECIFICATIONS

The designer or Owner shall furnish free of charge to the contractors electronic copies of plans and specifications. If requested by the contractor, paper copies of plans and specifications shall be furnished free of charge as follows:

a. General contractor - Up to twelve (12) sets of general contractor drawings and specifications, up to six (6) sets of which shall include drawings and specifications of all other contracts, plus a clean set of black line prints on white paper of all appropriate drawings, upon which the contractor shall clearly and legibly record all work-in-place that is at variance with the contract documents.

b. Each other contractor - Up to six (6) sets of the appropriate drawings and specifications, up to three (3) sets of which shall include drawings and specifications of all other contracts, plus a clean set of black line prints on white paper of all appropriate drawings, upon which the contractor shall clearly and legibly record all work-in-place that is at variance with the contract documents.

c. Additional sets shall be furnished at cost, including mailing, to the contractor upon request by the contractor. This cost shall be stated in the bidding documents.

d. For the purposes of a single-prime contract, the contractor shall receive up to 30 sets of drawings and specifications, plus a clean set of black line prints on white paper of all appropriate drawings, upon which the contractor shall clearly and legibly record all work-in-place that is at variance with the contract documents.

ARTICLE 5 - SHOP DRAWINGS, SUBMITTALS, SAMPLES, DATA

a. Within 15 consecutive calendar days after the notice to proceed, each prime contractor shall submit a schedule for submission of all shop drawings, product data, samples, and similar submittals through the Project Expediter to the Designer. This schedule shall indicate the items, relevant specification sections, other related submittal, data, and the date when these items will be furnished to the designer.

b. The Contractor(s) shall review, approve and submit to the Designer all Shop Drawings, Coordination Drawings, Product Data, Samples, Color Charts, and similar submittal data required or reasonably implied by the Contract Documents. Required Submittals shall bear the Contractor's stamp of approval, any exceptions to the Contract Documents shall be noted on the submittals, and copies of all submittals shall be of sufficient quantity for the Designer to retain up to three (3) copies of each submittal for his own use plus additional copies as may be required by the Contractor. Submittals shall be presented to the Designer in accordance with the schedule submitted in paragraph (a). so as to cause no delay in the activities of the Owner or of separate Contractors.

c. The Designer shall review required submittals promptly, noting desired corrections if any, and retaining three (3) copies (1 for the Designer, 1 for the owner and 1 for SCO) for his use. The remaining copies of each submittal shall be returned to the Contractor not later than twenty (20) days from the date of receipt by the Designer, for the Contractor's use or for corrections and resubmittal as noted by the Designer. When resubmittals are required, the submittal procedure shall be the same as for the original submittal**s.**

d. Approval of shop drawings/submittals by the Designer shall not be construed as relieving the Contractor from responsibility for compliance with the design or terms of the contract documents nor from responsibility of errors of any sort in the shop drawings, unless such lack of compliance or errors first have been called in writing to the attention of the Designer by the Contractor.

ARTICLE 6 - WORKING DRAWINGS AND SPECIFICATIONS AT THE JOB SITE

a. The contractor shall maintain, in readable condition at his job office, one complete set of working drawings and specifications for his work including all shop drawings. Such drawings and specifications shall be available for use by the designer, his authorized representative, owner or State Construction Office.

b. The contractor shall maintain at the job office, a day-to-day record of work-in-place that is at variance with the contract documents. Such variations shall be fully noted on project drawings by the contractor and submitted to the designer upon project completion and no later than 30 days after final acceptance of the project.

c. The contractor shall maintain at the job office a record of all required tests that have been performed, clearly indicating the scope of work inspected and the date of approval or rejection.

ARTICLE 7 - OWNERSHIP OF DRAWINGS AND SPECIFICATIONS

All drawings and specifications are instruments of service and remain the property of the owner. The use of these instruments on work other than this contract without permission of the owner is prohibited. All copies of drawings and specifications other than contract copies shall be returned to the owner upon request after completion of the work.

ARTICLE 8 - MATERIALS, EQUIPMENT, EMPLOYEES

a. The contractor shall, unless otherwise specified, supply and pay for all labor, transportation, materials, tools, apparatus, lights, power, heat, sanitary facilities, water, scaffolding and incidentals necessary for the completion of his work, and shall install, maintain and remove all equipment of the construction, other utensils or things, and be responsible for the safe, proper and lawful construction, maintenance and use of same, and shall construct in the best and most workmanlike manner, a complete job and everything incidental thereto, as shown on the plans, stated in the specifications, or reasonably implied therefrom, all in accordance with the contract documents.

b. All materials shall be new and of quality specified, except where reclaimed material is authorized herein and approved for use. Workmanship shall at all times be of a grade accepted as the best practice of the particular trade involved, and as stipulated in written standards of recognized organizations or institutes of the respective trades except as exceeded or qualified by the specifications.

c. Upon notice, the contractor shall furnish evidence as to quality of materials.

d. Products are generally specified by ASTM or other reference standard and/or by manufacturer's name and model number or trade name. When specified only by reference standard, the Contractor may select any product meeting this standard, by any manufacturer. When several products or manufacturers are specified as being equally acceptable, the Contractor has the option of using any product and manufacturer combination listed. However, the contractor shall be aware that the cited examples are used only to denote the quality standard of product desired and that they do not restrict bidders to a specific brand, make, manufacturer or specific name; that they are used only to set forth and convey to bidders the general style, type, character and quality of product desired; and that equivalent products will be acceptable. Request for substitution of materials, items, or equipment shall be submitted to the designer for approval or disapproval; such approval or disapproval shall be made by the designer prior to the opening of bids. Alternate materials may be requested after the award if it can clearly be demonstrated that it is an added benefit to the owner and the designer and owner approves.

e. The designer is the judge of equality for proposed substitution of products, materials or equipment.

g. If at any time during the construction and completion of the work covered by these contract documents, the language, conduct, or attire of any workman of the various crafts be adjudged a nuisance to the owner or designer, or if any workman be considered detrimental to the work, the contractor shall order such parties removed immediately from grounds.

ARTICLE 9 - ROYALTIES, LICENSES AND PATENTS

It is the intention of the contract documents that the work covered herein will not constitute in any way infringement of any patent whatsoever unless the fact of such patent is clearly evidenced herein. The contractor shall protect and save harmless the owner against suit on account of alleged or actual infringement. The contractor shall pay all royalties and/or license fees required on account of patented articles or processes, whether the patent rights are evidenced hereinafter.

ARTICLE 10 - PERMITS, INSPECTIONS, FEES, REGULATIONS

a. The contractor shall give all notices and comply with all laws, ordinances, codes, rules and regulations bearing on the conduct of the work under this contract. If the contractor observes that the drawings and specifications are at variance therewith, he shall promptly notify the designer in writing. See Instructions to Bidders, Paragraph 3, Bulletins and Addenda. Any necessary changes required after contract award shall be made by change order in accordance with Article 19. If the contractor performs any work knowing it to be contrary to such laws, ordinances, codes, rules and regulations, and without such notice to the designer, he shall bear all cost arising therefrom. Additional requirements implemented after bidding will be subject to equitable negotiations.

b. All work under this contract shall conform to the North Carolina State Building Code and other State, local and national codes as are applicable. The cost of all required inspections and permits shall be the responsibility of the contractor and included within the bid proposal. All water taps, meter barrels, vaults and impact fees shall be paid by the contractor unless otherwise noted.

d. Projects constructed by the State of North Carolina or by any agency or institution of the State are not subject to inspection by any county or municipal authorities and are not subject to county or municipal building codes. The contractor shall, however, cooperate with the county or municipal authorities by obtaining building permits. Permits shall be obtained at no cost.

e. Projects involving local funding (community colleges) are subject also to county and municipal building codes and inspection by local authorities. The contractor shall pay the cost of these permits and inspections.

ARTICLE 11 - PROTECTION OF WORK, PROPERTY AND THE PUBLIC

a. The contractors shall be jointly responsible for the entire site and the building or construction of the same and provide all the necessary protections, as required by the owner or designer, and by laws or ordinances governing such conditions. They shall be responsible for any damage to the owner's property, or of that of others on the job, by them, their personnel, or their subcontractors, and shall make good such damages. They shall be responsible for and pay for any damages caused to the owner. All contractors shall have access to the project at all times.

b. The contractor shall provide cover and protect all portions of the structure when the work is not in progress, provide and set all temporary roofs, covers for doorways, sash and windows, and all other materials necessary to protect all the work on the building, whether set by him, or any of the subcontractors. Any work damaged through the lack of proper protection or from any other cause, shall be repaired or replaced without extra cost to the owner.

c. No fires of any kind will be allowed inside or around the operations during the course of construction without special permission from the designer and owner.

d. The contractor shall protect all trees and shrubs designated to remain in the vicinity of the operations by building substantial boxes around same. He shall barricade all walks, roads, etc., as directed by the designer to keep the public away from the construction. All trenches, excavations or other hazards in the vicinity of the work shall be well barricaded and properly lighted at night.

e. The contractor shall provide all necessary safety measures for the protection of all persons on the job, including the requirements of the A.G.C. *Accident Prevention Manual in Construction*, as amended, and shall fully comply with all state laws or regulations and North Carolina State Building Code requirements to prevent accident or injury to persons on or about the location of the work. He shall clearly mark or post signs warning of hazards existing, and shall barricade excavations, elevator shafts, stairwells and similar hazards. He shall protect against damage or injury resulting from falling materials and he shall maintain all protective devices and signs throughout the progress of the work.

f. The contractor shall adhere to the rules, regulations and interpretations of the North Carolina Department of Labor relating to Occupational Safety and Health Standards for the Construction Industry (Title 29, Code of Federal Regulations, Part 1926, published in Volume 39, Number 122, Part II, June 24, 1974, *Federal Register*), and revisions thereto as adopted by General Statutes of North Carolina 95-126 through 155.

g. The contractor shall designate a responsible person of his organization as safety officer/inspector to inspect the project site for unsafe health and safety hazards, to report these hazards to the contractor for correction, and whose duties also include accident prevention on the project, and to provide other safety and health measures on the project site as required by the terms and conditions of the contract.The name of the safety inspector shall be made known to the designer and owner at the time of the preconstruction conference and in all cases prior to any work starting on the project.

h. In the event of emergency affecting the safety of life, the protection of work, or the safety of adjoining properties, the contractor is hereby authorized to act at his own discretion, without further authorization from anyone, to prevent such threatened injury or damage.

Any compensation claimed by the contractor on account of such action shall be determined as provided for under Article 19(b).

i. Any and all costs associated with correcting damage caused to adjacent properties of the construction site or staging area shall be borne by the contractor. These costs shall include but not be limited to flooding, mud, sand, stone, debris, and discharging of waste products.

ARTICLE 12 - SEDIMENTATION POLLUTION CONTROL ACT OF 1973

a. Any land-disturbing activity performed by the contractor(s) in connection with the project shall comply with all erosion control measures set forth in the contract documents and any additional measures which may be required in order to ensure that the project is in full compliance with the Sedimentation Pollution Control Act of 1973, as implemented by Title 15, North Carolina Administrative Code, Chapter 4, Sedimentation Control, Subchapters 4A, 4B and 4C, as amended (15 N.C.A.C. 4A, 4B and 4C).

b. Upon receipt of notice that a land-disturbing activity is in violation of said act, the contractor(s) shall be responsible for ensuring that all steps or actions necessary to bring the project in compliance with said act are promptly taken.

c. The contractor(s) shall be responsible for defending any legal actions instituted pursuant to N.C.G.S. 113A-64 against any party or persons described in this article.

d. To the fullest extent permitted by law, the contractor(s) shall indemnify and hold harmless the owner, the designer and the agents, consultants and employees of the owner and designer, from and against all claims, damages, civil penalties, losses and expenses, including, but not limited to, attorneys' fees, arising out of or resulting from the performance of work or failure of performance of work, provided that any such claim, damage, civil penalty, loss or expense is attributable to a violation of the Sedimentation Pollution Control Act. Such obligation shall not be construed to negate, abridge or otherwise reduced any other right or obligation of indemnity which would otherwise exist as to any party or persons described in this article.

ARTICLE 13 - INSPECTION OF THE WORK

a. It is a condition of this contract that the work shall be subject to inspection during normal working hours and during any time work is in preparation and progress by the designer, designated official representatives of the owner, State Construction Office and those persons required by state law to test special work for official approval. The contractor shall therefore provide safe access to the work at all times for such inspections.

b. All instructions to the contractor will be made only by or through the designer or his designated project representative. Observations made by official representatives of the owner shall be conveyed to the designer for review and coordination prior to issuance to the contractor.

c. All work shall be inspected by designer, special inspector and/or State Construction Office prior to being covered by the contractor. Contractor shall give a minimum two weeks notice unless otherwise agreed to by all parties. If inspection fails, after the first reinspection all costs associated with additional reinspections shall be borne by the contractor.

d. Where special inspection or testing is required by virtue of any state laws, instructions of the designer, specifications or codes, the contractor shall give adequate notice to the designer of the time set for such inspection or test, if the inspection or test will be conducted by a party other than the designer. Such special tests or inspections will be made in the presence of the designer, or his authorized representative, and it shall be the contractor's responsibility to serve ample notice of such tests.

e. All laboratory tests shall be paid by the owner unless provided otherwise in the contract documents except the general contractor shall pay for laboratory tests to establish design mix for concrete, and for additional tests to prove compliance with contract documents where materials have tested deficient except when the testing laboratory did not follow the appropriate ASTM testing procedures.

f. Should any work be covered up or concealed prior to inspection and approval by the designer, special inspector, and/or State Construction Office such work shall be uncovered or exposed for inspection, if so requested by the designer in writing. Inspection of the work will be made upon notice from the contractor. All cost involved in uncovering, repairing, replacing, recovering and restoring to design condition, the work that has been covered or concealed will be paid by the contractor involved.

ARTICLE 14 - CONSTRUCTION SUPERVISION AND SCHEDULE

a. Throughout the progress of the work, each contractor shall keep at the job site**,** a competent superintendent and supervisory staff satisfactory to the designer and the owner. The superintendent and supervisory staff shall not be changed without the consent of the designer and owner unless said superintendent ceases to be employed by the contractor or ceases to be competent as determined by the contractor, designer or owner. The superintendent and other staff designated by the contractor in writing shall have authority to act on behalf of the contractor, and instructions, directions or notices given to him shall be as binding as if given to the contractor. However, directions, instructions, and notices shall be confirmed in writing.

b. The contractor shall examine and study the drawings and specifications and fully understand the project design, and shall provide constant and efficient supervision to the work. Should he discover any discrepancies of any sort in the drawings or specifications, he shall report them to the designer without delay. He will not be held responsible for discrepancies in the drawings and/or specifications, but shall be held responsible to report them should they become known to him.

c. All contractors shall be required to cooperate and consult with each other during the construction of this project. Prior to installation of work, all contractors shall jointly prepare coordination drawings, showing locations of various ductworks, piping, motors, pumps, and other mechanical or electrical equipment, in relation to the structure, walls and ceilings. These drawings shall be submitted to the designer through the Project Expediter for information only**.** Each contractor shall lay out and execute his work to cause the least delay to other contractors. Each contractor shall be financially responsible for any damage to other contractor's work and for undue delay caused to other contractors on the project.

d. The contractor is required to attend job site progress conferences as called by the designer. The contractor shall be represented at these job progress conferences by both home office and project personnel. These representatives shall have authority to act on behalf of the contractor. These meetings shall be open to subcontractors, material

suppliers and any others who can contribute toward maintaining required job progress. It shall be the principal purpose of these meetings, or conferences, to effect coordination, cooperation and assistance in every practical way toward the end of maintaining progress of the project on schedule and to complete the project within the specified contract time. Each contractor shall be prepared to assess progress of the work as required in his particular contract and to recommend remedial measures for correction of progress as may be appropriate. The designer or his authorized representative shall be the coordinator of the conferences and shall preside as chairman. The contractor shall turn over a copy of his daily reports to the Designer and Owner at the job site progress conference. Owner will determine daily report format.

e The contractor(s) shall, employ an engineer or a land surveyor licensed in the State of North Carolina to lay out the work and to establish a bench mark in a location where same will not be disturbed and where direct instruments sights may be taken.

f. The designer shall designate a Project Expediter on projects involving two or more prime contracts. The Project Expediter shall be designated in the Supplementary General Conditions. The Project Expediter shall have at a minimum the following responsibilities.

1. Prepare the project construction schedule and shall allow all prime contractors (multi-prime contract) and subcontractors (single-prime contract) performing general, plumbing, HVAC, and electrical work equal input into the preparation of the initial construction schedule.

2. Maintain a project progress schedule for all contractors.

3. Give adequate notice to all contractors to ensure efficient continuity of all phases of the work.

4. Notify the designer of any changes in the project schedule.

5. Recommend to the owner whether payment to a contractor shall be approved.

g. It shall be the responsibility of the Project Expediter to cooperate with and obtain from several prime contractors and subcontractors on the job, their respective work activities and integrate these activities into a project construction schedule in form of a detailed bar chart or Critical Path Method (CPM), schedule. Each prime contractor shall provide work activities within fourteen (14) days of request by the Project Expediter. A "work activity", for scheduling purposes, shall be any component or contractual requirement of the project requiring at least one (1) day, but not more than fourteen (14) days, to complete or fulfill. The project construction schedule shall graphically show all salient features of the work required to construct the project from start to finish and within the allotted time established in the contract. The time (in days) between the contractor's early completion and contractual completion dates is part of the project total float time; and shall be used as such, unless amended by a change order. On a multi-prime project, each prime contractor shall review the proposed construction schedule and approve same in writing. The Project Expediter shall submit the proposed construction schedule to the designer for comments. The complete Project construction schedule shall be of the type set forth in the Supplementary General Condition or subparagraph (1) or (2) below, as appropriate:

1. For a project with total contracts of $500,000 or less, a bar chart schedule will satisfy the above requirement. The schedule shall indicate the estimated starting and completion dates for each major element of the work.

2. For a project with total contracts over $500,000, a Critical Path Method (CPM) schedule shall be utilized to control the planning and scheduling of the Work. The CPM schedule shall be the responsibility of the Project Expediter and shall be paid for by the Project Expediter.

Bar Chart Schedule: Where a bar chart schedule is required, it shall be time-scaled in weekly increments, shall indicate the estimated starting and completion dates for each major element of the work by trade and by area, level, or zone, and shall schedule dates for all salient features, including but not limited to the placing of orders for materials, submission of shop drawings and other Submittals for approval, approval of shop drawings by designers, the manufacture and delivery of material, the testing and the installation of materials, supplies and equipment, and all Work activities to be performed by the Contractor. The Contractor shall allow sufficient time in his schedule for all commissioning, required inspections and completion of final punchlist(s). Each Work activity will be assigned a time estimate by the Contractor. One day shall be the smallest time unit used.

CPM Schedule: Where a CPM schedule is required, it shall be in time-scaled precedence format using the Project Expediter's logic and time estimates. The CPM schedule shall be drawn or plotted with activities grouped or zoned by Work area or subcontract as opposed to a random (or scattered) format. The CPM schedule shall be time-scaled on a weekly basis and shall be drawn or plotted at a level of detail and logic which will schedule all salient features of the work to be performed by the Contractor. The Contractor shall allow sufficient time in his schedule for all commissioning, required inspections and completion of final punchlist(s).. Each Work activity will be assigned a time estimate by the Contractor. One day shall be the smallest time unit used.

The CPM schedule will identify and describe each activity, state the duration of each activity, the calendar dates for the early and late start and the early and late finish of each activity, and clearly highlight all activities on the critical path. "Total float" and "free float" shall be indicated for all activities. Float time shall not be considered for the exclusive use or benefit of either the Owner or the Contractor, but must be allocated in the best interest of completing the Work within the Contract time. Extensions to the Contract time, when granted by Change Order, will be granted only when equitable time adjustment exceeds the Total Float in the activity or path of activities affected by the change. On contracts with a price over $2,500,000, the CPM schedule shall also show what part of the Contract Price is attributable to each activity on the schedule, the sum of which for all activities shall equal the total Contract Price.

Early Completion of Project: The Contractor may attempt to complete the project prior to the Contract Completion Date. However, such planned early completion shall be for the Contractor's convenience only and shall not create any additional rights of the Contractor or obligations of the Owner under this Contract, nor shall it change the Time

for Completion or the Contract Completion Date. The Contractor shall not be required to pay liquidated damages to the Owner because of its failure to complete by its planned earlier date. Likewise, the Owner shall not pay the Contractor any additional compensation for early completion nor will the Owner owe the Contractor any compensation should the Owner, its officers, employees, or agents cause the Contractor not to complete earlier than the date required by the Contract Documents.

h. The proposed project construction schedule shall be presented to the designer no later than fifteen (15) days after written notice to proceed. No application for payment will be processed until this schedule is accepted by the designer and owner.

i. The approved project construction schedule shall be distributed to all contractors and displayed at the job site by the Project Expediter.

j. The several contractors shall be responsible for their work activities and shall notify the Project Expediter of any necessary changes or adjustments to their work. The Project Expediter shall maintain the project construction schedule, making biweekly adjustments, updates, corrections, etc., that are necessary to finish the project within the Contract time, keeping all contractors and the designer fully informed. Copy of a bar chart schedule annotated to show the current progress shall be submitted by the Contractor(s) to the designer, along with monthly request for payment. For project requiring CPM schedule, the Contractor shall submit a biweekly report of the status of all activities. The bar chart schedule or status report shall show the actual Work completed to date in comparison with the original Work scheduled for all activities. If any activities of the work of several contractors are behind schedule, the contractor must indicate in writing, what measures will be taken to bring each such activity back on schedule and to ensure that the Contract Completion Date is not exceeded. A plan of action and recovery schedule shall be developed and submitted to the designer by the Project Expediter, when (1) the contractor's report indicates delays, that are in the opinion of the designer or the owner, of sufficient magnitude that the contractor's ability to complete the work by the scheduled completion is brought into question; (2) the updated construction schedule is thirty (30) days behind the planned or baseline schedule and no legitimate time extensions, as determined by the Designer, are in process; and (3) the contractor desires to make changes in the logic (sequencing of work) or the planned duration of future activities of the CPM schedule which, in the opinion of the designer or the owner, are of a major nature. The plan of action, when required shall be submitted to the Owner for review within two (2) business days of the Contractor receiving the Owner's written demand. The recovery schedule, when required, shall be submitted to the Owner within five (5) calendar days of the Contractor's receiving the Owner's written demand. Failure to provide an updated construction schedule or a recovery schedule may be grounds for rejection of payment applications or withholding of funds as set forth in Article 33.

k. The Project Expediter shall notify each contractor of such events or time frames that are critical to the progress of the job. Such notice shall be timely and reasonable. Should the progress be delayed due to the work of any of the several contractors, it shall be the duty of the Project Expediter to immediately notify the contractor(s) responsible for such delay, the designer, the State Construction Office and other prime contractors. The designer shall determine the contractor(s) who caused the delays and notify the bonding company of the responsible contractor(s) of the delays; and shall make a recommendation to the owner regarding further action.

l. Designation as Project Expediter entails an additional project control responsibility and does not alter in any way the responsibility of the contractor so designated, nor the

responsibility of the other contractors involved in the project. The project expeditor's Superintendent(s) shall be in attendance at the Project site at all times when work is in progress unless conditions are beyond the control of the Contractor or until termination of the Contract in accordance with the Contract Documents. It is understood that such Superintendent shall be acceptable to the Owner and Designer and shall be the one who will be continued in that capacity for the duration of the project unless he ceases to be on the Contractor's payroll or the Owner otherwise agrees. The Superintendent shall not be employed on any other project for or by the Contractor or by any other entity during the course of the Work. If the Superintendent is employed by the Contractor on another project without the Owner's approval, then the Owner may deduct from the Contractor's monthly general condition costs and amount representing the Superintendent's cost and shall deduct that amount for each month thereafter until the Contractor has the Superintendent back on the Owner's Project full-time.

ARTICLE 15 - SEPARATE CONTRACTS AND CONTRACTOR RELATIONSHIPS

a. Effective from January 1, 2002, Chapter 143, Article 8, was amended, to allow public contracts to be delivered by the following delivery methods: single-prime, dual (single-prime and separate-prime), construction manager at risk, and alternative contracting method as approved by the State Building Commission. The owner reserves the right to prepare separate specifications, receive separate bids, and award separate contracts for such other major items of work as may be in the best interest of the State. For the purposes of a single prime contract, refer to Article 1 – Definitions.

b. All contractors shall cooperate with each other in the execution of their work, and shall plan their work in such manner as to avoid conflicting schedules or delay of the work. See Article 14, Construction Supervision.

c. If any part of contractor's work depends upon the work of another contractor, defects which may affect that work shall be reported to the designer in order that prompt inspection may be made and the defects corrected. Commencement of work by a contractor where such condition exists will constitute acceptance of the other contractor's work as being satisfactory in all respects to receive the work commenced, except as to defects which may later develop. The designer shall be the judge as to the quality of work and shall settle all disputes on the matter between contractors.

d. Any mechanical or electrical work such as sleeves, inserts, chases, openings, penetrations, etc., which is located in the work of the general contractor shall be built in by the general contractor. The respective mechanical and electrical contractors shall set all sleeves, inserts and other devices that are to be incorporated into the structure in cooperation and under the supervision of the general contractor. The responsibility for the exact location of such items shall be that of the mechanical and/or electrical contractor.

e. The designer and the owner shall have access to the work whenever it is in preparation and progress and during normal working hours. The contractor shall provide facilities for such access so the designer may perform his functions under the contract documents.

f. Should a contractor cause damage to the work or property of another contractor, he shall be directly responsible, and upon notice, shall promptly settle the claim or otherwise resolve the dispute.

ARTICLE 16 - SUBCONTRACTS AND SUBCONTRACTORS

a. Within thirty (30) days after award of the contract, the contractor shall submit to the designer, owner and to the State Construction Office a list giving the names and addresses of subcontractors and equipment and material suppliers he proposes to use, together with the scope of their respective parts of the work. Should any subcontractor be disapproved by the designer or owner, the designer or owner shall submit his reasons for disapproval in writing to the State Construction Office for its consideration with a copy to the contractor. If the State Construction Office concurs with the designer's or owner's recommendation, the contractor shall submit a substitute for approval. The designer and owner shall act promptly in the approval of subcontractors, and when approval of the list is given, no changes of subcontractors will be permitted except for cause or reason considered justifiable by the designer or owner.

b. The designer will furnish to any subcontractor, upon request, evidence regarding amounts of money paid to the contractor on account of the subcontractor's work.

c. The contractor is and remains fully responsible for his own acts or omissions as well as those of any subcontractor or of any employee of either. The contractor agrees that no contractual relationship exists between the subcontractor and the owner in regard to the contract, and that the subcontractor acts on this work as an agent or employee of the contractor.

d. The owner reserves the right to limit the amount of portions of work to be subcontracted as hereinafter specified.

ARTICLE 17 - CONTRACTOR AND SUBCONTRACTOR RELATIONSHIPS

The contractor agrees that the terms of these contract documents shall apply equally to each subcontractor as to the contractor, and the contractor agrees to take such action as may be necessary to bind each subcontractor to these terms. The contractor further agrees to conform to the Code of Ethical Conduct as adopted by the Associated General Contractors of America, Inc., with respect to contractor-subcontractor relationships, and that payments to subcontractors shall be made in accordance with the provisions of G.S. 143-134.1 titled Interest on final payments due to prime contractors: payments to subcontractors.

a. On all public construction contracts which are let by a board or governing body of the state government or any political subdivision thereof, except contracts let by the Department of Transportation pursuant to G.S. 136-28.1, the balance due prime contractors shall be paid in full within 45 days after respective prime contracts of the project have been accepted by the owner, certified by the architect, engineer or designer to be completed in accordance with terms of the plans and specifications, or occupied by the owner and used for the purpose for which the project was constructed, whichever occurs first. Provided, however, that whenever the architect or consulting engineer in charge of the project determines that delay in completion of the project in accordance with terms of the plans and specifications is the fault of the contractor, the project may be occupied and used for the purposes for which it was constructed without payment of any interest on amounts withheld past the 45 day limit. No payment shall be delayed because of the failure of another prime contractor on such project to complete his contract. Should final payment to any prime contractor beyond the date such contracts have been certified to be completed by the designer or architect, accepted by the owner, or occupied by the owner and used for the purposes for which the project was constructed, be delayed by more than 45 days, said prime contractor shall be paid interest, beginning on the 46th day, at the rate of one percent (1%) per month or fraction thereof unless a lower rate is

agreed upon on such unpaid balance as may be due. In addition to the above final payment provisions, periodic payments due a prime contractor during construction shall be paid in accordance with the payment provisions of the contract documents or said prime contractor shall be paid interest on any such unpaid amount at the rate stipulated above for delayed final payments. Such interest shall begin on the date the payment is due and continue until the date on which payment is made. Such due date may be established by the terms of the contract. Funds for payment of such interest on state-owned projects shall be obtained from the current budget of the owning department, institution or agency. Where a conditional acceptance of a contract exists, and where the owner is retaining a reasonable sum pending correction of such conditions, interest on such reasonable sum shall not apply.

b. Within seven days of receipt by the prime contractor of each periodic or final payment, the prime contractor shall pay the subcontractor based on work completed or service provided under the subcontract. Should any periodic or final payment to the subcontractor be delayed by more than seven days after receipt of periodic or final payment by the prime contractor, the prime contractor shall pay the subcontractor interest, beginning on the eighth day, at the rate of one percent (1%) per month or fraction thereof on such unpaid balance as may be due.

c. The percentage of retainage on payments made by the prime contractor to the subcontractor shall not exceed the percentage of retainage on payments made by the owner to the prime contractor. Any percentage of retainage on payments made by the prime contractor to the subcontractor that exceeds the percentage of retainage on payments made by the owner to the prime contractor shall be subject to interest to be paid by the prime contractor to the subcontractor at the rate of one percent (1%) per month or fraction thereof.

d. Nothing in this section shall prevent the prime contractor at the time of application and certification to the owner from withholding application and certification to the owner for payment to the subcontractor for unsatisfactory job progress; defective construction not remedied; disputed work; third-party claims filed or reasonable evidence that claim will be filed; failure of subcontractor to make timely payments for labor, equipment and materials; damage to prime contractor or another subcontractor; reasonable evidence that subcontract cannot be completed for the unpaid balance of the subcontract sum; or a reasonable amount for retainage not to exceed the initial percentage retained by owner.

ARTICLE 18 - DESIGNER'S STATUS

a. The designer shall provide general administration of the performance of construction contracts, including liaison and necessary inspection of the work to ensure compliance with plans and specifications. He is the agent of the owner only for the purpose of constructing this work and to the extent stipulated in the contract documents. He has authority to direct work to be performed, to stop work, to order work removed, or to order corrections of faulty work, where any such action by the designer may be necessary to assure successful completion of the work.

b. The designer is the impartial interpreter of the contract documents, and, as such, he shall exercise his powers under the contract to enforce faithful performance by both the owner and the contractor, taking sides with neither.

c. Should the designer cease to be employed on the work for any reason whatsoever, then the owner shall employ a competent replacement who shall assume the status of the former designer.

d. The designer and his consultants will make inspections of the project. He will inspect the progress, the quality and the quantity of the work.

e. The designer and the owner shall have access to the work whenever it is in preparation and progress during normal working hours. The contractor shall provide facilities for such access so the designer and owner may perform their functions under the contract documents.

f. Based on the designer's inspections and evaluations of the project, the designer shall issue interpretations, directives and decisions as may be necessary to administer the project. His decisions relating to artistic effect and technical matters shall be final, provided such decisions are within the limitations of the contract.

ARTICLE 19 - CHANGES IN THE WORK

a. The owner may have changes made in the work covered by the contract. These changes will not invalidate and will not relieve or release the contractor from any guarantee given by him pertinent to the contract provisions. These changes will not affect the validity of the guarantee bond and will not relieve the surety or sureties of said bond. All extra work shall be executed under conditions of the original contract.

b. Except in an emergency endangering life or property, no change shall be made by the contractor except upon receipt of approved change order or written field order from the designer, countersigned by the owner and the state construction office authorizing such change. No claim for adjustments of the contract price shall be valid unless this procedure is followed.

A field order, transmitted by fax, electronically, or hand delivered, may be used where the change involved impacts the critical path of the work. A formal change order shall be issued as expeditiously as possible.

In the event of emergency endangering life or property, the contractor may be directed to proceed on a time and material basis whereupon the contractor shall proceed and keep accurately on such form as specified by the designer or owner, a correct account of costs together with all proper invoices, payrolls and supporting data. Upon completion of the work the change order will be prepared as outlined under either Method "c(1)" or Method "c(2)" or both.

c. In determining the values of changes, either additive or deductive, contractors are restricted to the use of the following methods:

1. Where the extra work involved is covered by unit prices quoted in the proposal, or subsequently agreed to by the Contractor, Designer, Owner and State Construction Office the value of the change shall be computed by application of unit prices based on quantities, estimated or actual as agreed of the items involved, except is such cases where a quantity exceeds the estimated quantity allowance in the contract by one hundred percent (100%) or more. In such cases, either party may elect to proceed under subparagraph c2 herein. If neither party elects to proceed under c2, then unit prices shall apply.

2. The contracting parties shall negotiate and agree upon the equitable value of the change prior to issuance of the change order, and the change order shall stipulate the corresponding lump sum adjustment to the contract price.

d. Under Paragraph “b” and Methods "c(2)" above, the allowances for overhead and profit combined shall be as follows: all contractors (the single contracting entity (prime), his subcontractors(1st tier subs), or their sub-subcontractors (2nd tier subs, 3rd tier subs, etc)) shall be allowed a maximum of 10% on work they each self-perform; the prime contractor shall be allowed a maximum of 5% on contracted work of his 1st tier sub; 1st tier, 2nd tier, 3rd tier, etc contractors shall be allowed a maximum of 2.5% on the contracted workof their subs. ; Under Method "c(1)", no additional allowances shall be made for overhead and profit. In the case of deductible change orders, under Method "c(2)" and Paragraph (b) above, the contractor shall include no less than five percent (5%) profit, but no allowances for overhead.

e. The term "net cost" as used herein shall mean the difference between all proper cost additions and deductions. The "cost" as used herein shall be limited to the following:

1. The actual costs of materials and supplies incorporated or consumed as part of the work;

2. The actual costs of labor expended on the project site; labor expended in coordination, change order negotiation, record document maintenance, shop drawing revision or other tasks necessary to the administration of the project are considered overhead whether they take place in an office or on the project site.

3. The actual costs of labor burden, limited to the costs of social security (FICA) and Medicare/Medicaid taxes; unemployment insurance costs; health/dental/vision insurance premiums; paid employee leave for holidays, vacation, sick leave, and/or petty leave, not to exceed a total of 30 days per year; retirement contributions; worker’s compensation insurance premiums; and the costs of general liability insurance when premiums are computed based on payroll amounts; the total of which shall not exceed thirty percent (30%) of the actual costs of labor;

4. The actual costs of rental for tools, excluding hand tools; equipment; machinery; and temporary facilities required for the work;

5. The actual costs of premiums for bonds, insurance, permit fees, and sales or use taxes related to the work.

Overtime and extra pay for holidays and weekends may be a cost item only to the extent approved by the owner.

f. Should concealed conditions be encountered in the performance of the work below grade, or should concealed or unknown conditions in an existing structure be at variance with the conditions indicated by the contract documents, the contract sum and time for completion may be equitably adjusted by change order upon claim by either party made within thirty (30) days after the condition has been identified. The cost of such change shall be arrived at by one of the foregoing methods. All change orders shall be supported by a unit cost breakdown showing method of arriving at net cost as defined above.

g. In all change orders, the procedure will be for the designer to request proposals for the change order work in writing. The contractor will provide such proposal and supporting data in suitable format. The designer shall verify correctness. Delay in the processing of the change order due to lack of proper submittal by the contractor of all required supporting data shall not constitute grounds for a time extension or basis of a claim. Within fourteen (14) days after receipt of the contractor’s accepted proposal including all supporting documentation required by the designer, the designer shall prepare the change order and forward to the contractor for his signature or otherwise respond, in writing, to

the contractor's proposal. Within seven (7) days after receipt of the change order executed by the contractor, the designer shall, certify the change order by his signature, and forward the change order and all supporting data to the owner for the owner's signature. The owner shall execute the change order and forward to the State Construction Office for final approval**,** within seven (7) days of receipt. The State Construction Office shall act on the change order within seven (7) days. In case of emergency or extenuating circumstances, approval of changes may be obtained verbally by telephone or field orders approved by all parties, then shall be substantiated in writing as outlined under normal procedure.

h. At the time of signing a change order, the contractor shall be required to certify as follows:

"I certify that my bonding company will be notified forthwith that my contract has been changed by the amount of this change order, and that a copy of the approved change order will be mailed upon receipt by me to my surety."

i. A change order, when issued, shall be full compensation, or credit, for the work included, omitted or substituted. It shall show on its face the adjustment in time for completion of the project as a result of the change in the work.

j. If, during the progress of the work, the owner requests a change order and the contractor's terms are unacceptable, the owner**,** with the approval of the State Construction Office, may require the contractor to perform such work on a time and material basis whereupon the contractor shall proceed and keep accurately on such form as specified by the Designer or owner, a correct account of cost together with all proper invoices, payrolls and supporting data. Upon completion of the work a change order will be prepared with allowances for overhead and profit per paragraph d. above and "net cost" and "cost" per paragraph e. above. Without prejudice, nothing in this paragraph shall preclude the owner from performing or to have performed that portion of the work requested in the change order.

ARTICLE 20 - CLAIMS FOR EXTRA COST

a. Should the contractor consider that as a result of instructions given by the designer, he is entitled to extra cost above that stated in the contract, he shall give written notice thereof to the designer within seven (7) days without delay. The written notice shall clearly state that a claim for extra cost is being made and shall provide a detailed justification for the extra cost. The contractor shall not proceed with the work affected until further advised, except in emergency involving the safety of life or property, which condition is covered in Article 19(b) and Article 11(h). No claims for extra compensation shall be considered unless the claim is so made. The designer shall render a written decision within seven (7) days of receipt of claim.

b. The contractor shall not act on instructions received by him from persons other than the designer, and any claims for extra compensation or extension of time on account of such instruction will not be honored. The designer shall not be responsible for misunderstandings claimed by the contractor of verbal instructions which have not been confirmed in writing, and in no case shall instructions be interpreted as permitting a departure from the contract documents unless such instruction is confirmed in writing and supported by a properly authorized change order.

c. Should a claim for extra compensation that complies with the requirements of (a) above by the contractor and is denied by the designer or owner, and cannot be resolved by a

representative of the State Construction Office, the contractor may request a mediation in connection with GS 143-128(f1) in the dispute resolution rules adopted by the State Building Commission (1 N.C.A.C. 30H .0101 through .1001). If the contractor is unable to resolve its claim as a result of mediation, the contractor may pursue the claim in accordance with the provisions of G.S. 143-135.3, or G.S. 143-135.6 where Community Colleges are the owner,and the following:

1. A contractor who has not completed a contract with a board for construction or repair work and who has not received the amount he claims is due under the contract may submit a verified written claim to the director of the State Construction Office of the Department of Administration for the amount the contractor claims is due. The director may deny, allow or compromise the claim, in whole or in part. A claim under this subsection is not a contested case under Chapter 150B of the General Statutes.

2. (a) A contractor who has completed a contract with a board for construction or repair work and who has not received the amount he claims is due under the contract may submit a verified written claim to the director of the State Construction Office of the Department of Administration for the amount the contractor claims is due. The claim shall be submitted within sixty (60) days after the contractor receives a final statement of the board's disposition of his claim and shall state the factual basis for the claim.

   (b) The director shall investigate a submitted claim within ninety (90) days of receiving the claim, or within any longer time period upon which the director and the contractor agree. The contractor may appear before the director, either in person or through counsel, to present facts and arguments in support of his claim. The director may allow, deny or compromise the claim, in whole or in part. The director shall give the contractor a written statement of the director's decision on the contractor's claim.

   (c) A contractor who is dissatisfied with the director's decision on a claim submitted under this subsection may commence a contested case on the claim under Chapter 150B of the General Statutes. The contested case shall be commenced within sixty (60) days of receiving the director's written statement of the decision.

   (d) As to any portion of a claim that is denied by the director, the contractor may, in lieu of the procedures set forth in the preceding subsection of this section, within six (6) months of receipt of the director's final decision, institute a civil action for the sum he claims to be entitled to under the contract by filing a verified complaint and the issuance of a summons in the Superior Court of Wake County or in the superior court of any county where the work under the contract was performed. The procedure shall be the same as in all civil actions except that all issues shall be tried by the judge, without a jury.

ARTICLE 21 - MINOR CHANGES IN THE WORK

The designer will have the authority to order minor changes in the work not involving an adjustment in the contract sum or time for completion, and not inconsistent with the intent of the contract documents. Such changes shall be effected by written order, copied to the State Construction Office, and shall be binding on the owner and the contractor.

ARTICLE 22 - UNCORRECTED FAULTY WORK

Should the correction of faulty or damaged work be considered inadvisable or inexpedient by the owner and the designer, the owner shall be reimbursed by the contractor. A change order will be issued to reflect a reduction in the contract sum.

ARTICLE 23 - TIME OF COMPLETION, DELAYS, EXTENSION OF TIME

a. The time of completion is stated in the Supplementary General Conditions and in the Form of Construction Contract. The Project Expediter, upon notice of award of contract, shall prepare a construction schedule to complete the project within the time of completion as required by Article 14.

b. The contractors shall commence work to be performed under this agreement on a date to be specified in a written Notice to Proceed from the designer and shall fully complete all work hereunder within the time of completion stated. Time is of the essence and the contractor acknowledges the Owner will likely suffer financial damage for failure to complete the work within the time of completion. For each day in excess of the above number of days, the contractor(s) shall pay the owner the sum stated as liquidated damages reasonably estimated in advance to cover the losses to be incurred by the owner by reason of failure of said contractor(s) to complete the work within the time specified, such time being in the essence of this contract and a material consideration thereof. Should the work be delayed by both the owner and contractor, liquidated damages shall be apportioned to reflect the delays of each party. In the case of concurrent delays, contractor caused delays shall be accounted for before owner and designer caused delays.

c. In the event of multiple prime contractors, the designer shall be the judge as to the division of responsibility between the contractor(s), based on the construction schedule, weekly reports and job records, and shall apportion the amount of liquidated damages to be paid by each of them, according to delay caused by any or all of them.

d. If the contractor is delayed at any time in the progress of his work solely by any act or negligence of the owner, the designer, or by any employee of either; by any separate contractor employed by the owner; by changes ordered in the work; by labor disputes at the project site; by abnormal weather conditions not reasonably anticipated for the locality where the work is performed; by unavoidable casualties; by any causes beyond the contractor's control; or by any other causes which the designer and owner determine may justify the delay, then the contract time may be extended by change order only for the time which the designer and owner may determine is reasonable.

Time extensions will not be granted for rain, wind, snow or other natural phenomena of normal intensity for the locality where work is performed. For purpose of determining extent of delay attributable to unusual weather phenomena, a determination shall be made by comparing the weather for the contract period involved with the average of the preceding five (5) year climatic range during the same time interval based on the National Oceanic and Atmospheric Administration National Weather Service statistics for the locality where work is performed and on daily weather logs kept on the job site by the contractor reflecting the effect of the weather on progress of the work and initialed by the designer's representative. No weather delays shall be considered after the building is dried in unless work claimed to be delayed is on the critical path of the baseline schedule or approved updated schedule. Time extensions for weather delays, acts of God, labor disputes, fire, delays in transportation, unavoidable casualties or other delays which are beyond the control of the Owner do not entitle the Contractor to compensable damages for delays. Any contractor claim for compensable damages for delays is limited to delays caused solely by the owner or its agents. Contractor caused delays shall be accounted for before owner or designer caused delays in the case of concurrent delays.

e. Request for extension of time shall be made in writing to the designer, copies to the owner and SCO, within twenty (20) days following cause of delay. In case of continuing cause for delay, the Contractor shall notify the Designer to the designer, copies to the owner and SCO, of the delay within 20 days of the beginning of the delay and only one claim is necessary.

f. The contractor shall notify his surety in writing of extension of time granted.

g. No claim for time extension shall be allowed on account of failure of the designer to furnish drawings or instructions until twenty (20) days after demand for such drawings and/or instructions. See Article 5c. Demand must be in written form clearly stating the potential for delay unless the drawings or instructions are provided. Any delay granted will begin after the twenty (20) day demand period is concluded.

ARTICLE 24 - PARTIAL UTILIZATION/BENEFICIAL OCCUPANCY

a. The owner may desire to occupy or utilize all or a portion of the project prior to the completion of the project.

b. Should the owner request a utilization of a building or portion thereof, the designer shall perform a designer final inspection of area after being notified by the contractor that the area is ready for such. After the contractor has completed designer final inspection punch list and the designer has verified, then the designer shall schedule a beneficial occupancy inspection at a time and date acceptable to the owner, contractor(s) and State Construction Office. If beneficial occupancy is granted by the State Construction Office, in such areas the following will be established:

1. The beginning of guarantees and warranties period for the equipment necessary to support. in the area.

2. The owner assumes all responsibiliites for utility costs for entire building.

2. Contractor will obtain consent of surety.

3. Contractor will obtain endorsement from insurance company permitting beneficial occupancy.

c. The owner shall have the right to exclude the contractor from any part of the project which the designer has so certified to be substantially complete, but the owner will allow the contractor reasonable access to complete or correct work to bring it into compliance with the contract.

d. Occupancy by the owner under this article will in no way relieve the contractor from his contractual requirement to complete the project within the specified time. The contractor will not be relieved of liquidated damages because of beneficial occupancy. The designer may prorate liquidated damages based on the percentage of project occupied.

ARTICLE 25 - FINAL INSPECTION, ACCEPTANCE, AND PROJECT CLOSEOUT

a. Upon notification from the contractor(s) that the project is complete and ready for inspection, the designer shall make a Designer final inspection to verify that the project is complete and ready for SCO final inspection. Prior to SCO final inspection, the contractor(s) shall complete all items requiring corrective measures noted at the Designer

final inspection. The designer shall schedule a SCO final inspection at a time and date acceptable to the owner, contractor(s) and State Construction Office.

b. At the SCO final inspection, the designer and his consultants shall, if job conditions warrant, record a list of items that are found to be incomplete or not in accordance with the contract documents. At the conclusion of the SCO final inspection, the designer and State Construction Office representative shall make one of the following determinations:

1. That the project is completed and accepted.

2. That the project will be accepted subject to the correction of the list of discrepancies (punch list). All punch list items must be completed within thirty (30) days of SCO final inspection or the owner may invoke Article 28, Owner's Right to Do Work.

4. That the project is not complete and another date for a SCO final inspection will be established.

c. Within fourteen (14) days of final acceptance per Paragraph b1 or within fourteen (14) days after completion of punch list per Paragraph b2 above, the designer shall certify the work and issue applicable certificate(s) of compliance.

d. Any discrepancies listed or discovered after the date of SCO final inspection and acceptance under Paragraphs b1 or b2 above shall be handled in accordance with Article 42, Guarantee.

f. The final acceptance date will establish the following:

1. The beginning of guarantees and warranties period.

2. The date on which the contractor's insurance coverage for public liability, property damage and builder's risk may be terminated.

3. That no liquidated damages (if applicable) shall be assessed after this date.

4. The termination date of utility cost to the contractor.

g. Prior to issuance of final acceptance date, the contractor shall have his authorized representatives visit the project and give full instructions to the designated personnel regarding operating, maintenance, care, and adjustment of all equipment and special construction elements. In addition, the contractor shall provide to the owner a complete instructional video (media format acceptable to the owner) on the operation, maintenance, care and adjustment of all equipment and special construction elements.

ARTICLE 26 - CORRECTION OF WORK BEFORE FINAL PAYMENT

a. Any work, materials, fabricated items or other parts of the work which have been condemned or declared not in accordance with the contract by the designer shall be promptly removed from the work site by the contractor, and shall be immediately replaced by new work in accordance with the contract at no additional cost to the owner. Work or property of other contractors or the owner, damaged or destroyed by virtue of such faulty work, shall be made good at the expense of the contractor whose work is faulty.

b. Correction of condemned work described above shall commence within twenty-four (24) hours after receipt of notice from the designer, and shall make satisfactory progress, as determined by the designer, until completed.

c. Should the contractor fail to proceed with the required corrections, then the owner may complete the work in accordance with the provisions of Article 28.

ARTICLE 27 - CORRECTION OF WORK AFTER FINAL PAYMENT

See Article 35, Performance Bond and Payment Bond, and Article 42, Guarantee**.** Neither the final certificate, final payment, occupancy of the premises by the owner, nor any provision of the contract, nor any other act or instrument of the owner, nor the designer, shall relieve the contractor from responsibility for negligence, or faulty material or workmanship, or failure to comply with the drawings and specifications. Contractor shall correct or make good any defects due thereto and repair any damage resulting there from, which may appear during the guarantee period following final acceptance of the work except as stated otherwise under Article 42, Guarantee. The owner will report any defects as they may appear to the contractor and establish a time limit for completion of corrections by the contractor. The owner will be the judge as to the responsibility for correction of defects.

ARTICLE 28 - OWNER'S RIGHT TO DO WORK

If, during the progress of the work or during the period of guarantee, the contractor fails to prosecute the work properly or to perform any provision of the contract, the owner, after seven (7) days' written notice sent by certified mail, return receipt requested, to the contractor from the designer, may perform or have performed that portion of the work. The cost of the work may be deducted from any amounts due or to become due to the contractor, such action and cost of same having been first approved by the designer. Should the cost of such action of the owner exceed the amount due or to become due the contractor, then the contractor or his surety, or both, shall be liable for and shall pay to the owner the amount of said excess.

ARTICLE 29 - ANNULMENT OF CONTRACT

If the contractor fails to begin the work under the contract within the time specified, or the progress of the work is not maintained on schedule, or the work is not completed within the time above specified, or fails to perform the work with sufficient workmen and equipment or with sufficient materials to ensure the prompt completion of said work, or shall perform the work unsuitably or shall discontinue the prosecution of the work, or if the contractor shall become insolvent or be declared bankrupt or commit any act of bankruptcy or insolvency, or allow any final judgment to stand against him unsatisfied for a period of forty-eight (48) hours, or shall make an assignment for the benefit of creditors, or for any other cause whatsoever shall not carry on the work in an acceptable manner, the owner may give notice in writing, sent by certified mail, return receipt requested, to the contractor and his surety of such delay, neglect or default, specifying the same, and if the contractor within a period of seven (7) days after such notice shall not proceed in accordance therewith, then the owner shall, declare this contract in default, and, thereupon, the surety shall promptly take over the work and complete the performance of this contract in the manner and within the time frame specified. In the event the surety shall fail to take over the work to be done under this contract within seven (7) days after being so notified and notify the owner in writing, sent by certified mail, return receipt requested, that he is taking the same over and stating that he will diligently pursue and complete the same, the owner shall have full power and authority, without violating the contract, to take the prosecution of the work out of the hands of said contractor, to appropriate or use any or all contract materials and equipment on the grounds as may be suitable and acceptable and may enter into an agreement, either by public letting or negotiation, for the completion of said contract according to the terms and provisions thereof

or use such other methods as in his opinion shall be required for the completion of said contract in an acceptable manner. All costs and charges incurred by the owner, together with the costs of completing the work under contract, shall be deducted from any monies due or which may become due said contractor and surety. In case the expense so incurred by the owner shall be less than the sum which would have been payable under the contract, if it had been completed by said contractor, then the said contractor and surety shall be entitled to receive the difference, but in case such expense shall exceed the sum which would have been payable under the contract, then the contractor and the surety shall be liable and shall pay to the owner the amount of said excess.

ARTICLE 30 - CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE THE CONTRACT

a. Should the work be stopped by order of a court having jurisdiction, or by order of any other public authority for a period of three months, due to cause beyond the fault or control of the contractor, or if the owner should fail or refuse to make payment on account of a certificate issued by the designer within forty-five (45) days after receipt of same, then the contractor, after fifteen (15) days' written notice sent by certified mail, return receipt requested, to the owner and the designer, may suspend operations on the work or terminate the contract.

b. The owner shall be liable to the contractor for the cost of all materials delivered and work performed on this contract plus 10 percent overhead and profit and shall make such payment. The designer shall be the judge as to the correctness of such payment.

ARTICLE 31 - REQUEST FOR PAYMENT

a. Not later than the fifth day of the month, the contractor shall submit to the designer a request for payment for work done during the previous month. The request shall be in the form agreed upon between the contractor and the designer, but shall show substantially the value of work done and materials delivered to the site during the period since the last payment, and shall sum up the financial status of the contract with the following information:

    1. Total of contract including change orders.

    2. Value of work completed to date.

    3. Less five percent (5%) retainage, provided however, that after fifty percent (50%) of the contractor’s work has been satisfactorily completed on schedule, with approval of the owner and the State Construction Office and written consent of the surety, further requirements for retainage will be waived only so long as work continues to be completed satisfactorily and on schedule.

    4. Less previous payments.

    5. Current amount due.

b. The contractor, upon request of the designer, shall substantiate the request with invoices of vouchers or payrolls or other evidence.

c. Prior to submitting the first request, the contractor shall prepare for the designer a schedule showing a breakdown of the contract price into values of the various parts of the work, so arranged as to facilitate payments to subcontractors in accordance with Article 17, Contractor and Subcontractor Relationships. The contractor(s) shall list the

value of each subcontractor and supplier, identifying each minority business subcontractor and supplier as listed in Affidavit C, if applicable.

d. When payment is made on account of stored materials and equipment, such materials must be stored on the owner's property, and the requests for payments shall be accompanied by invoices or bills of sale or other evidence to establish the owner's title to such materials and equipment. Such payments will be made only for materials that have been customized or fabricated specifically for this project. Raw materials or commodity products including but not limited to piping, conduit, CMU, metal studs and gypsum board may not be submitted. Responsibility for such stored materials and equipment shall remain with the contractor regardless of ownership title. Such stored materials and equipment shall not be removed from the owner's property. Should the space for storage on-site be limited, the contractor, at his option, shall be permitted to store such materials and/or equipment in a suitable space off-site. Should the contractor desire to include any such materials or equipment in his application for payment, they must be stored in the name of the owner in an independent, licensed, bonded warehouse approved by the designer, owner and the State Construction Office and located as close to the site as possible. The warehouse selected must be approved by the contractor's bonding and insurance companies; the material to be paid for shall be assigned to the owner and shall be inspected by the designer. Upon approval by the designer, owner and SCO of the storage facilities and materials and equipment, payment therefore will be certified. Responsibility for such stored materials and equipment shall remain with the contractor. Such stored materials and equipment shall not be moved except for transportation to the project site. Under certain conditions, the designer may approve storage of materials at the point of manufacture, which conditions shall be approved by the designer, the owner and the State Construction Office prior to approval for the storage and shall include an agreement by the storing party which unconditionally gives the State absolute right to possession of the materials at anytime. Bond, security and insurance protection shall continue to be the responsibility of the contractor(s).

e. In the event of beneficial occupancy, retainage of funds due the contractor(s) may be reduced with the approval of the State Construction Office to an equitable amount to cover the list of items to be completed or corrected. Retainage may not be reduced to less than two and one-half (2 1/2) times the estimated value of the work to be completed or corrected. Reduction of retainage must be with the consent and approval of the contractor's bonding company.

ARTICLE 32 - CERTIFICATES OF PAYMENT AND FINAL PAYMENT

a. Within five (5) days from receipt of request for payment from the contractor, the designer shall issue and forward to the owner a certificate for payment. This certificate shall indicate the amount requested or as approved by the designer. If the certificate is not approved by the designer, he shall state in writing to the contractor and the owner his reasons for withholding payment.

b. No certificate issued or payment made shall constitute an acceptance of the work or any part thereof. The making and acceptance of final payment shall constitute a waiver of all claims by the owner except:

1. Claims arising from unsettled liens or claims against the contractor.

2. Faulty work or materials appearing after final payment.

3. Failure of the contractor to perform the work in accordance with drawings and specifications, such failure appearing after payment.

4. As conditioned in the performance bond and payment bond.

c. The making and acceptance of final payment shall constitute a waiver of all claims by the contractor except those claims previously made and remaining unsettled (Article 20(c)).

d. Prior to submitting request for final payment to the designer for approval, the contractor shall fully comply with all requirements specified in the" project closeout" section of the specifications. These requirements include but not limited to the following:

1. Submittal of Product and Operating Manuals, Warranties and Bonds, Guarantees, Maintenance Agreements, As-Built Drawings, Certificates of Inspection or Approval from agencies having jurisdiction. (The designer must approve the Manuals prior to delivery to the owner).

2. Transfer of Required attic stock material and all keys in an organized manner.

3. Record of Owner's training.

4. Resolution of any final inspection discrepancies.

5. Granting access to Contractor's records, if Owner's internal auditors have made a request for such access pursuant to Article 52.

e. The contractor shall forward to the designer, the final application for payment along with the following documents:

1. List of minority business subcontractors and material suppliers showing breakdown of contract amounts and total actual payments to subs and material suppliers.

2. Affidavit of Release of Liens.

3. Affidavit of contractors of payment to material suppliers and subcontractors. (See Article 36).

4. Consent of Surety to Final Payment.

5. Certificates of state agencies required by state law.

f. The designer will not authorize final payment until the work under contract has been certified by designer, certificates of compliance issued, and the contractor has complied with the closeout requirements. The designer shall forward the contractor's final application for payment to the owner along with respective certificate(s) of compliance required by law.

ARTICLE 33 - PAYMENTS WITHHELD

a. The designer with the approval of the State Construction Office may withhold payment for the following reasons:

1. Faulty work not corrected.

2. The unpaid balance on the contract is insufficient to complete the work in the judgment of the designer.

3. To provide for sufficient contract balance to cover liquidated damages that will be assessed.

b. The secretary of the Department of Administration may authorize the withholding of payment for the following reasons:

1. Claims filed against the contractor or evidence that a claim will be filed.

2. Evidence that subcontractors have not been paid.

c. The Owner may withhold all or a portion of Contractor's general conditions costs set forth in the approved schedule of values, if Contractor has failed to comply with: (1) a request to access its records by Owner's internal auditors pursuant to Article 52; (2) a request for a plan of action and/or recovery schedule under Article 14.j or provide The Owner; (3) a request to provide an electronic copies of Contractor's baseline schedule, updates with all logic used to create the schedules in the original format of the scheduling software; and (4) Contractor's failure to have its Superintendent on the Project full-time; (

d. When grounds for withholding payments have been removed, payment will be released. Delay of payment due the contractor without cause will make owner liable for payment of interest to the contractor in accordance with G.S. 143-134.1. As provided in G.S.143-134.1(e) the owner shall not be liable for interest on payments withheld by the owner for unsatisfactory job progess, defective construction not remedied, disputed work, or third-party claims filed against the owner or reasonable evidence that a third-party claim will be filed.

ARTICLE 34 - MINIMUM INSURANCE REQUIREMENTS

The work under this contract shall not commence until the contractor has obtained all required insurance and verifying certificates of insurance have been approved in writing by the owner. These certificates shall document that coverages afforded under the policies will not be cancelled, reduced in amount or coverages eliminated until at least thirty (30) days after mailing written notice, by certified mail, return receipt requested, to the insured and the owner of such alteration or cancellation. If endorsements are needed to comply with the notification or other requirements of this article copies of the endorsements shall be submitted with the certificates.

a. Worker's Compensation and Employer's Liability

The contractor shall provide and maintain, until final acceptance, workmen's compensation insurance, as required by law, as well as employer's liability coverage with minimum limits of $100,000.

b. Public Liability and Property Damage

The contractor shall provide and maintain, until final acceptance, comprehensive general liability insurance, including coverage for premises operations, independent contractors, completed operations, products and contractual exposures, as shall protect such contractors from claims arising out of any bodily injury, including accidental death, as well as from claims for property damages which may arise from operations under this contract, whether such operations be by the contractor or by any subcontractor, or by

anyone directly or indirectly employed by either of them and the minimum limits of such insurance shall be as follows:

Bodily Injury:	$500,000 per occurrence
Property Damage:	$100,000 per occurrence / $300,000 aggregate

In lieu of limits listed above, a $500,000 combined single limit shall satisfy both conditions.

Such coverage for completed operations must be maintained for at least two (2) years following final acceptance of the work performed under the contract.

c. **Property Insurance (Builder's Risk/Installation Floater)**

The contractor shall purchase and maintain property insurance until final acceptance, upon the entire work at the site to the full insurable value thereof. This insurance shall include the interests of the owner, the contractor, the subcontractors and sub-subcontractors in the work and shall insure against the perils of fire, wind, rain, flood, extended coverage, and vandalism and malicious mischief. If the owner is damaged by failure of the contractor to purchase or maintain such insurance, then the contractor shall bear all reasonable costs properly attributable thereto; the contractor shall effect and maintain similar property insurance on portions of the work stored off the site when request for payment per articles so includes such portions.

d. Deductible

Any deductible, if applicable to loss covered by insurance provided, is to be borne by the contractor.

e. Other Insurance

The contractor shall obtain such additional insurance as may be required by the owner or by the General Statutes of North Carolina including motor vehicle insurance, in amounts not less than the statutory limits.

f. Proof of Carriage

The contractor shall furnish the owner with satisfactory proof of carriage of the insurance required before written approval is granted by the owner.

ARTICLE 35 - PERFORMANCE BOND AND PAYMENT BOND

a. Each contractor shall furnish a performance bond and payment bond executed by a surety company authorized to do business in North Carolina. The bonds shall be in the full contract amount. Bonds shall be executed in the form bound with these specifications.

b. All bonds shall be countersigned by an authorized agent of the bonding company who is licensed to do business in North Carolina.

ARTICLE 36 - CONTRACTOR'S AFFIDAVIT

The final payment of retained amount due the contractor on account of the contract shall not become due until the contractor has furnished to the owner through the designer an affidavit signed, sworn and notarized to the effect that all payments for materials, services or subcontracted work in connection with his contract have been satisfied, and that no claims or

liens exist against the contractor in connection with this contract. In the event that the contractor cannot obtain similar affidavits from subcontractors to protect the contractor and the owner from possible liens or claims against the subcontractor, the contractor shall state in his affidavit that no claims or liens exist against any subcontractor to the best of his (the contractor's) knowledge, and if any appear afterward, the contractor shall save the owner harmless.

ARTICLE 37 - ASSIGNMENTS

The contractor shall not assign any portion of this contract nor subcontract in its entirety. Except as may be required under terms of the performance bond or payment bond, no funds or sums of money due or become due the contractor under the contract may be assigned.

ARTICLE 38 - USE OF PREMISES

a. The contractor(s) shall confine his apparatus, the storage of materials and the operations of his workmen to limits indicated by law, ordinances, permits or directions of the designer and owner and shall not exceed those established limits in his operations.

b. The contractor(s) shall not load or permit any part of the structure to be loaded with a weight that will endanger its safety.

c. The contractor(s) shall enforce the designer's and owner’s instructions regarding signs, advertisements, fires and smoking.

d. No firearms, any type of alcoholic beverages, or drugs (other than those prescribed by a physician) will be permitted at the job site.

ARTICLE 39 - CUTTING, PATCHING AND DIGGING

a. The contractor shall do all cutting, fitting or patching of his work that may be required to make its several parts come together properly and fit it to receive or be received by work of other contractors shown upon or reasonably implied by the drawings and specifications for the completed structure, as the designer may direct.

b. Any cost brought about by defective or ill-timed work shall be borne by the party responsible therefor.

c. No contractor shall endanger any work of another contractor by cutting, digging or other means. No contractor shall cut or alter the work of any other contractor without the consent of the designer and the affected contractor(s).

ARTICLE 40 - UTILITIES, STRUCTURES, SIGNS

a. The contractor shall provide necessary and adequate facilities for water, electricity, gas, oil, sewer and other utility services which maybe necessary and required for completion of the project including all utilities required for testing, cleaning, balancing, and sterilization of designated plumbing, mechanical and electrical systems. Any permanent meters installed shall be listed in the contractor’s name until work has a final acceptance. The contractor will be solely responsible for all utility costs prior to final acceptance. Contractor shall contact all affected utility companies prior to bid to determine their requirements to provide temporary and permanent service and include all costs associated with providing those services in their bid. Coordination of the work of the utility companies during construction is the sole responsibility of the contractor.

b. Meters shall be relisted in the owner's name on the day following final acceptance of the Project Expediter's work, and the owner shall pay for services used after that date.

c. The owner shall be reimbursed for all metered utility charges after the meter is relisted in the owner's name and prior to completion and acceptance of the work of **all** contractors. Reimbursement shall be made by the contractor whose work has not been completed and accepted. If the work of two or more contractors has not been completed and accepted, reimbursement to the owner shall be paid by the contractors involved on the basis of assessments by the designer.

d Prior to the operation of permanent systems, the Project Expediter will provide temporary power, lighting, water, and heat to maintain space temperature above freezing, as required for construction operations.

e. All contractors shall have the permanent building systems in sufficient readiness for furnishing temporary climatic control at the time a building is enclosed and secured. The HVAC systems shall maintain climatic control throughout the enclosed portion of the building sufficient to allow completion of the interior finishes of the building. A building shall be considered enclosed and secured when windows**,** doorways (exterior, mechanical, and electrical equipment rooms), and hardware are installed**;** and other openings have protection which will provide reasonable climatic control. The appropriate time to start the mechanical systems and climatic condition shall be jointly determined by the contractor(s), the designer and owner. Use of the equipment in this manner shall be subject to the approval of the Designer and owner and shall in no way affect the warranty requirements of the contractor(s).

f. The electrical contractor shall have the building's permanent power wiring distribution system in sufficient readiness to provide power as required by the HVAC contractor for temporary climatic control.

g. The electrical contractor shall have the building's permanent lighting system ready at the time the general contractor begins interior painting and shall provide adequate lighting in those areas where interior painting and finishing is being performed.

h. Each prime contractor shall be responsible for his permanently fixed service facilities and systems in use during progress of the work. The following procedures shall be strictly adhered to:

1. Prior to final acceptance of work by the State Construction Office, each contractor shall remove and replace any parts of the permanent building systems damaged through use during construction.

2. Temporary filters as recommended by the equipment manufacturer in order to keep the equipment and ductwork clean and free of dust and debris shall be installed in each of the heating and air conditioning units and at each return grille during construction. New filters shall be installed in each unit prior to the owner's acceptance of the work.

3. Extra effort shall be maintained to keep the building and the site adjacent to the building clean and under no circumstances shall air systems be operated if finishing and site work operations are creating dust in excess of what would be considered normal if the building were occupied.

4. It shall be understood that any warranty on equipment presented to the owner shall extend from the day of final acceptance by the owner. The cost of warranting the

equipment during operation in the finishing stages of construction shall be borne by the contractor whose system is utilized.

5. The electrical contractor shall have all lamps in proper working condition at the time of final project acceptance.

i. The Project Expediter shall provide, if required and where directed, a shed for toilet facilities and shall furnish and install in this shed all water closets required for a complete and adequate sanitary arrangement. These facilities will be available to other contractors on the job and shall be kept in a neat and sanitary condition at all times. Chemical toilets are acceptable.

j. The Project Expediter shall, if required by the Supplementary General Conditions and where directed, erect a temporary field office, complete with lights, telephone, heat and air conditioning. A portion of this office shall be partitioned off, of sufficient size, for the use of a resident inspector, should the designer so direct.

k. On multi-story construction projects, the Project Expediter shall provide temporary elevators, lifts, or other special equipment for the general use of all contractors. The cost for such elevators, lifts or other special equipment and the operation thereof shall be included in the Project Expediter's bid.

l. The Project Expediter will erect one sign on the project if required. The sign shall be of sound construction, and shall be neatly lettered with black letters on white background. The sign shall bear the name of the project, and the names of prime contractors on the project, and the name of the designer and consultants. Directional signs may be erected on the owner's property subject to approval of the owner with respect to size, style and location of such directional signs. Such signs may bear the name of the contractor and a directional symbol. No other signs will be permitted except by permission of the owner.

ARTICLE 41 - CLEANING UP

a. The contractors shall keep the building and surrounding area reasonably free from rubbish at all times, and shall remove debris from the site on a timely basis or when directed to do so by the designer or Project Expediter. The Project Expediter shall provide an on site refuse container(s) for the use of all contractors. Each contractor shall remove their rubbish and debris from the building on a daily basis. The Project Expediter shall broom clean the building as required to minimize dust and dirt accumulation.

b. The Project Expediter shall provide and maintain suitable all-weather access to the building.

c. Before final inspection and acceptance of the building, each contractor shall clean his portion of the work, including glass, hardware, fixtures, masonry, tile and marble (using no acid), clean and wax all floors as specified, and completely prepare the building for use by the owner, with no cleaning required by the owner.

ARTICLE 42 - GUARANTEE

a. The contractor shall unconditionally guarantee materials and workmanship against patent defects arising from faulty materials, faulty workmanship or negligence for a period of twelve (12) months following the date of final acceptance of the work or beneficial occupancy and shall replace such defective materials or workmanship without cost to the owner.

b. Where items of equipment or material carry a manufacturer's warranty for any period in excess of twelve (12) months, then the manufacturer's warranty shall apply for that particular piece of equipment or material. The contractor shall replace such defective equipment or materials, without cost to the owner, within the manufacturer's warranty period.

c. Additionally, the owner may bring an action for latent defects caused by the negligence of the contractor which is hidden or not readily apparent to the owner at the time of beneficial occupancy or final acceptance, whichever occurred first, in accordance with applicable law.

d. Guarantees for roof, equipment, materials, and supplies shall be stipulated in the specifications sections governing such roof, equipment, materials, or supplies.

ARTICLE 43 - CODES AND STANDARDS

Wherever reference is given to codes, standard specifications or other data published by regulating agencies including, but not limited to, national electrical codes, North Carolina state building codes, federal specifications, ASTM specifications, various institute specifications, etc., it shall be understood that such reference is to the latest edition including addenda published prior to the date of the contract documents.

ARTICLE 44 - INDEMNIFICATION

To the fullest extent permitted by law, the contractor shall indemnify and hold harmless the owner, the designer and the agents, consultants and employees of the owner and designer, from and against all claims, damages, losses and expenses, including, but not limited to, attorneys' fees, arising out of or resulting from the performance or failure of performance of the work, provided that any such claim, damage, loss or expense (1) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself) including the loss of use resulting there from, and (2) is caused in whole or in part by any negligent act or omission of the contractor, the contractor's subcontractor, or the agents of either the contractor or the contractor's subcontractor. Such obligation shall not be construed to negate, abridge or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in this article.

ARTICLE 45 - TAXES

a. Federal excise taxes do not apply to materials entering into state work (Internal Revenue Code, Section 3442(3)).

b. Federal transportation taxes do not apply to materials entering into state work (Internal Revenue Code, Section 3475(b) as amended).

c. North Carolina sales tax and use tax, as required by law, do apply to materials entering into state work and such costs shall be included in the bid proposal and contract sum.

d. Local option sales and use taxes, as required by law, do apply to materials entering into state work as applicable and such costs shall be included in the bid proposal and contract sum.

e. Accounting Procedures for Refund of County Sales & Use Tax

Amount of county sales and use tax paid per contractor's statements:

Contractors performing contracts for state agencies shall give the state agency for whose project the property was purchased a signed statement containing the information listed in G.S. 105-164.14(e).

The Department of Revenue has agreed that in lieu of obtaining copies of sales receipts from contractors, an agency may obtain a certified statement as of April 1, 1991 from the contractor setting forth the date, the type of property and the cost of the property purchased from each vendor, the county in which the vendor made the sale and the amount of local sales and use taxes paid thereon. If the property was purchased out-of-state, the county in which the property was delivered should be listed. The contractor should also be notified that the certified statement may be subject to audit.

In the event the contractors make several purchases from the same vendor, such certified statement must indicate the invoice numbers, the inclusive dates of the invoices, the total amount of the invoices, the counties, and the county sales and use taxes paid thereon.

Name of taxing county: The position of a sale is the retailer's place of business located within a taxing county where the vendor becomes contractually obligated to make the sale. Therefore, it is important that the county tax be reported for the county of sale rather than the county of use.

When property is purchased from out-of-state vendors and the county tax is charged, the county should be identified where delivery is made when reporting the county tax.

Such statement must also include the cost of any tangible personal property withdrawn from the contractor's warehouse stock and the amount of county sales or use tax paid thereon by the contractor.

Similar certified statements by his subcontractors must be obtained by the general contractor and furnished to the claimant.
Contractors are not to include any tax paid on supplies, tools and equipment which they use to perform their contracts and should include only those building materials, supplies, fixtures and equipment which actually become a part of or annexed to the building or structure.

ARTICLE 46 - EQUAL OPPORTUNITY CLAUSE

The non-discrimination clause contained in Section 202 (Federal) Executive Order 11246, as amended by Executive Order 11375, relative to equal employment opportunity for all persons without regard to race, color, religion, sex or national origin, and the implementing rules and regulations prescribed by the secretary of Labor, are incorporated herein.

ARTICLE 47 - EMPLOYMENT OF INDIVIDUALS WITH DISABILITIES

The contractor(s) agree not to discriminate against any employee or applicant for employment because of physical or mental disabilities in regard to any position for which the employee or applicant is qualified. The contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified individuals with such disabilities without discrimination based upon their physical or mental disability in all employment practices.

ARTICLE 48 - ASBESTOS-CONTAINING MATERIALS (ACM)

The State of North Carolina has attempted to address all asbestos-containing materials that are to be disturbed in the project. However, there may be other asbestos-containing materials in the work areas that are not to be disturbed and do not create an exposure hazard.

Contractors are reminded of the requirements of instructions under Instructions to Bidders and General Conditions of the Contract, titled Examination of Conditions. Statute 130A, Article 19, amended August 3, 1989, established the Asbestos Hazard Management Program that controls asbestos abatement in North Carolina. The latest edition of *Guideline Criteria for Asbestos Abatement* from the State Construction Office is to be incorporated in all asbestos abatement projects for the Capital Improvement Program.

ARTICLE 49 - MINORITY BUSINESS PARTICIPATION

GS 143-128.2 establishes a ten percent (10%) goal for participation by minority businesses in total value of work for each State building project. The document, *Guidelines for Recruitment and Selection of Minority Businesses for Participation in State Construction Contracts* including Affidavits and Appendix E are hereby incorporated into and made a part of this contract.

ARTICLE 50 – CONTRACTOR EVALUATION

The contractor's overall work performance on the project shall be fairly evaluated in accordance with the State Building Commission policy and procedures, for determining qualifications to bid on future State capital improvement projects. In addition to final evaluation, interim evaluation may be prepared during the progress of project. The document, Contractor Evaluation Procedures, is hereby incorporated and made a part of this contract. The owner may request the contractor's comments to evaluate the designer.

ARTICLE 51 – GIFTS

Pursuant to N.C. Gen. Stat. § 133-32, it is unlawful for any vendor or contractor (i.e. architect, bidder, contractor, construction manager, design professional, engineer, subcontractor, supplier, vendor, etc.), to make gifts or to give favors to any State employee. This prohibition covers those vendors and contractors who: (1) have a contract with a governmental agency; or (2) have performed under such a contract within the past year; or (3) anticipate bidding on such a contract in the future. For additional information regarding the specific requirements and exemptions, vendors and contractors are encouraged to review G.S. Sec. 133-32.

During the construction of the Project, the Contractor is prohibited from making gifts to any of the Owner's employees, Owner's project representatives (architect, engineers, construction manager and their employees), employees of the State Construction Office and/or any other State employee that may have any involvement, influence, responsibilities, oversight, management and/or duties that pertain to and/or relate to the contract administration, financial administration and/or disposition of claims arising from and/or relating to the Contract and/or Project.

ARTICLE 52 – AUDITING-ACCESS TO PERSONS AND RECORDS

In accordance with N.C. General Statute 147-64.7, the State Auditor shall have access to Contractor's officers, employees, agents and/or other persons in control of and/or responsible for the Contractor's records that relate to this Contracts for purposes of conducting audits under the referenced statute. The Owner's internal auditors shall also have the right to access and copy the Contractor's records relating to the Contract and Project during the term of the Contract and within two years following the completion of the Project/close-out of the Contract to verify accounts, accuracy, information, calculations and/or data affecting and/or

relating to Contractor's requests for payment, requests for change orders, change orders, claims for extra work, requests for time extensions and related claims for delay/extended general conditions costs, claims for lost productivity, claims for loss efficiency, claims for idle equipment or labor, claims for price/cost escalation, pass-through claims of subcontractors and/or suppliers, and/or any other type of claim for payment or damages from Owner and/or its project representatives.

ARTICLE 53 – NORTH CAROLINA FALSE CLAIMS ACT

The North Carolina False Claims Act ("NCFCA"), N.C Gen. Stat. § 1-605 through 1-618, applies to this Contract. The Contractor should familiarize itself with the entire NCFCA and should seek the assistance of an attorney if it has any questions regarding the NCFCA and its applicability to any requests, demands and/or claims for payment its submits to the State through the contracting state agency, institution, university or community college.

The purpose of the NCFCA "is to deter persons from knowingly causing or assisting in causing the State to pay claims that are false or fraudulent and to provide remedies in the form of treble damages and civil penalties when money is obtained from the State by reason of a false or fraudulent claim." (Section 1-605(b).) A contractor's liability under the NCFCA may arise from, but is not limited to: requests for payment, invoices, billing, claims for extra work, requests for change orders, requests for time extensions, claims for delay damages/extended general conditions costs, claims for loss productivity, claims for loss efficiency, claims for idle equipment or labor, claims for price/cost escalation, pass-through claims of subcontractors and/or suppliers, documentation used to support any of the foregoing requests or claims, and/or any other request for payment from the State through the contracting state agency, institution, university or community college. The parts of the NCFCA that are most likely to be enforced with respect to this type of contract are as follows:

- A "claim" is "[a]ny request or demand, whether under a contract or otherwise, for money or property and whether or not the State has title to the money or property that (i) is presented to an officer, employee, or agent of the State or (ii) is made to a contractor … if the money or property is to be spent or used on the State's behalf or to advance a State program or interest and if the State government: (a) provides or has provided any portion of the money or property that is requested or demanded; or (b) will reimburse such contractor … for any portion of the money or property which is requested or demanded." (Section 1-606(2).)

- "Knowing" and "knowingly." – Whenever a person, with respect to information, does any of the following: (a) Has actual knowledge of the information; (b) Acts in deliberate ignorance of the truth or falsity of the information; and/or (c) Acts in reckless disregard of the truth or falsity of the information. (Section 1-606(4).) Proof of specific intent to defraud is not required. (Section 1-606(4).)

- "Material" means having a natural tendency to influence, or be capable of influencing, the payment or receipt of money or property. (Section 1-606(4).)

- Liability. – "Any person who commits any of the following acts shall be liable to the State for three times the amount of damages that the State sustains because of the act of that person[:] … (1) Knowingly presents or causes to be presented a false or fraudulent claim for payment or approval. (2) Knowingly makes, uses, or causes to be made or used, a false record or statement material to a false or fraudulent claim. (3) Conspires to commit a violation of subdivision (1), (2) …" (Section 1-607(a)(1), (2).)

- The NCFCA shall be interpreted and construed so as to be consistent with the federal False Claims Act, 31 U.S.C. § 3729, et seq., and any subsequent amendments to that act. (Section 1-616(c).)

Finally, the contracting state agency, institution, university or community college may refer any suspected violation of the NCFCA by the Contractor to the Attorney General's Office for investigation. Under Section 1-608(a), the Attorney General is responsible for investigating any violation of NCFCA, and may bring a civil action against the Contractor under the NCFCA. The Attorney General's investigation and any civil action relating thereto are independent and not subject to any dispute resolution provision set forth in this Contract. (See Section 1-608(a).)

ARTICLE 54 – TERMINATION FOR CONVENIENCE

Owner may at any time and for any reason terminate Contractor's services and work at Owner's convenience. Upon receipt of such notice, Contractor shall, unless the notice directs otherwise, immediately discontinue the work and placing of orders for materials, facilities and supplies in connection with the performance of this Agreement.

Upon such termination, Contractor shall be entitled to payment only as follows: (1) the actual cost of the work completed in conformity with this Agreement; plus, (2) such other costs actually incurred by Contractor as are permitted by the prime contract and approved by Owner; (3) plus ten percent (10%) of the cost of the work referred to in subparagraph (1) above for overhead and profit. There shall be deducted from such sums as provided in this subparagraph the amount of any payments made to Contractor prior to the date of the termination of this Agreement. Contractor shall not be entitled to any claim or claim of lien against Owner for any additional compensation or damages in the event of such termination and payment.

SUPPLEMENTARY GENERAL CONDITIONS

TIME OF COMPLETION

The Contractor shall commence work to be performed under this Contract on a date to be specified in written order from the Designer/Owner and shall fully complete all work hereunder within 180 consecutive calendar days from the Notice to Proceed. For each day in excess of the above number of days, the Contractor shall pay the Owner the amount of Two Hundred Fifty Dollars ($ 250.00) as liquidated damages reasonably estimated in advance to cover the losses to be incurred by the Owner should the Contractor fail to complete the Work within the time specified.

If the Contractor is delayed at anytime in the progress of his work by any act or negligence of the Owner, his employees or his separate contractor, by changes ordered in the work; by abnormal weather conditions; by any causes beyond the Contractor's control or by other causes deemed justifiable by Owner, then the contract time may be reasonably extended in a written order from the Owner upon written request from the contractor within ten days following the cause for delay. Time extensions for weather delays, acts of God, labor disputes, fire, delays in transportation, unavoidable casualties or other delays which are beyond the control of the Owner do not entitle the Contractor to compensable damages for delays. Any contractor claim for compensable damages for delays is limited to delays caused solely by the owner or its agents.

UTILITIES

Owner will provide certain utilities such as power or water with connections and extensions by the Contractor. Contractor to provide temporary toilets.

SECURITY

The present level of security to be maintained on the builing during construction.

USE OF SITE

Cordinate with owner all working schedules.

ALTERNATE BIDS

None

Section 00820 - Special Conditions

1. General: The existing site will be occupied by the Owner during the construction period. All contractors shall conduct their operations so as to cause no interference with the normal operations of the existing facilities. All contractors shall limit use of the site for access and storage of materials to those areas approved by the Owner. All access to the area of work must be through designated areas approved by the Owner. Contractors shall not be allowed access to any area other than the immediate area of work. The existing parking lot is to remain in operation for the public.

2. On Site Parking: Parking is not permitted on the Owner's property except for limited construction vehicles used in the performance of the work and only where approved by the Owner.

3. Building Security: The present level of security for the existing facility shall not be reduced in any way, due to work of this contract.

4. Personnel Safety: Contractor shall provide barricades and similar types of safety times required to protect anyone in the area of work from the hazards of construction activities. Roadways, walks, paths, entrances, exits, etc. shall remain unobstructed and shall be maintained in a safe and satisfactory manner.

5. Site Protection: Contractor shall be responsible for and shall protect buildings, landscaping (all trees, shrubs, lawns, etc.) vehicles, etc. on or near the site from damage due to the work of this contract. Any damage shall be fully corrected to the satisfaction of the Architect. Sidewalks and paved areas shall be protected from damage prior to vehicular traffic use. If during the construction, public or private property is damaged or destroyed, during the course of the work, the responsible contractor shall, at his own expense, restore such property to a condition equal to that existing before such damage or injury was done, by repairing, rebuilding or replacing it, or otherwise making good such damage or destruction in an acceptable manner.

6. Existing building to be relocated and utilities reconnected for temporary offices by NCSPA staff and to be shared with Contractor as a field office. At the completion of the project the existing building is to be removed/demolished.

7. Owner will provide location of existing building relocation and orientation (location to be in existing grassed parking area). Contractor will be responsible for building layout. After layout verify building location with NCDOT prior to beginning construction.

END OF SECTION 00820

SECTION 01010 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project description.
2. Applicable regulatory requirements.
3. Access to the site.
4. Contractor's use of the premises.
5. Coordination requirements.

B. Related Documents:

1. Division 0 – Bidding and General Conditions, Division 1 – General Requirements, all applicable provisions in the technical specification sections of Divisions 2 through 16 and applicable drawings apply to this section.

1.2 PROJECT DESCRIPTION

A. The project consists of the new Shipping and Receiving Office.

1. As shown in contract documents.

B. The work consists of:

1. Construction of a Shipping and Receiving Office.
2. Temporary relocation of existing building.

1.3 PRIME CONTRACTS

A. The work will be bid as one Single Prime Informal Contract.

1.4 REGULATORY REQUIREMENTS

A. The following regulations are applicable to this project:

1. North Carolina State Building Code, 2018 edition.
2. This Project is in the Inspections jurisdiction of State Construction.
3. Submit copies of all licenses, and similar permissions obtained and receipts for fees paid, to the Architect, upon request.

1.5 ACCESS TO THE SITE AND USE OF THE PREMISES

A. Space will be available to the Contractor for the performance of the work.

B. Storage and staging areas will be available on site.

C. Signs: Provide signs adequate to direct visitors.

1. Do not install, or allow to be installed, signs other than specified sign(s) and signs identifying the principal entities involved in the project.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 PRE-CONSTRUCTION MEETING

A. A Pre-Construction meeting will be held at a time and place designated by the Architect, for the purpose of identifying responsibilities of the Owner and Architect’s personnel, and explanation of administrative procedures.

B. The Contractor(s) shall also use this meeting for the following minimum agenda:

1. Construction Schedule.
2. Use of areas of the site.
3. Delivery and storage.

4. Safety.
5. Security.
6. Clean-up.
7. Contractor procedures related to:
    a. Submittals
    b. Change orders.
    c. Application for payment.
    d. Record documents.

C. Attendees will include:
1. The Owner's/SCO Representative.
2. The Architect, and any consultants that are applicable.
3. Contractor and Superintendent.
4. Major subcontractors, suppliers, and fabricators.

3.2 SECURITY PROCEDURES

A. Limit access to the site work area to persons involved in the work. The existing building must stay in operation.

B. Provide secure storage for materials for which the Owner has made payment and which are stored on site.

C. Secure completed work as required to prevent loss.

3.3 COORDINATION

A. A monthly meeting will be held, for the specific purpose of coordination, at the site.
1. Attendees shall include:
    a. Representative of the General Contractor.
    b. Subcontractors currently working at the site, if necessary.
    c. Owner's representative.
    d. Architect/Engineer.

B. The General Contractor is responsible for coordination of all products/materials, installations, in the Single Prime scenario.
1. Prepare coordination drawings as needed for separate products.
2. Where space is limited, show plan and cross-section dimensions of space available.
3. Coordinate shop drawings prepared by separate entities.
4. Show installation sequence when necessary for proper installation.

C The Owner will turn the building over to the Contractor for the piping replacement portion of the work which is to occur during the maximum agreed upon 7 day shut down period. All other work to be preformed with the occupancy of the building intact and coordinated with the Owners schedule.
1. All existing building life safety systems shall remain operational during occupancy of the building. If the fire protection system is shut down for any length of time, the Contractor is required to notify Fire Officials and maintain a fire watch at all times the system is inoperable.

END OF SECTION 01010

SECTION 01027 - PAYMENT, MODIFICATION, AND COMPLETION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Payment procedures.
   2. Modification procedures.
   3. Completion procedures.

B. Related Documents:
   1. Division 0 – Bidding and General Conditions, Division 1 – General requirements, all applicable provisions in the technical specification sections of Divisions 2 through 16 and applicable drawings apply to this section.

C. Related Requirements Specified Elsewhere in the Project Manual:
   1. Project Record Documents, Division 1.
   2. Schedule of Values, Division 1.

1.2 CONTRACT CONDITIONS

A. See the General Conditions of the Contract for additional requirements.

B. The Owner will retain from each progress payment an amount equal to 5 percent of the value of the work covered by the progress payment.

C. At substantial completion the Contractor may apply for release of retainage sufficient to bring the total of payments to 95 percent of the contract sum, less those amounts that are withheld to cover incomplete or incorrect work and unsettled claims, as defined elsewhere.

D. No payment will be made for materials or equipment stored off site.

E. Payments may be withheld if the contractor fails to make dated submittals within the time periods specified.

1.3 DEFINITIONS

A. Request for Pricing (R.F.P.): Any written request from the Owner or Architect to the contractor for a quotation, price, or breakdown on a change proposed but not ordered.

B. Final Completion: The stage at which all incomplete and incorrect work has been completed or corrected in accordance with the contract documents.

C. List of Incomplete Work: A comprehensive list of items to be completed or corrected, prepared by the contractor for the purpose of obtaining certification of substantial completion. This list is also referred to as a "punch list."

D. Modifications: Any written amendments to the contract, such as change orders.

E. Schedule of Values: A detailed breakdown of the contract sum into individual cost items, which will serve as the basis for evaluation of applications for progress payments during construction. Line items shall be broken down into Materials and Labor and rounded to the nearest dollar.

F. Substantial Completion: The time at which the work, or a portion of the work which the owner agrees to accept separately, is sufficiently complete in accordance with the contract documents

so that the owner can occupy or use the work for its intended purpose.

1.4 SUBMITTALS

A. Schedule of Values: Must be submitted for review by Single Prime Contractor prior to submitting first Application for Payment. First application for payment will not be reviewed without approved schedule of values.

B. Applications for Payments: Submit sufficiently in advance of date established for the progress payment to allow for the processing indicated.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 SCHEDULE OF VALUES – See Section 01370

A. Contractor shall prepare a schedule of values for his work.

3.2 APPLICATIONS FOR PAYMENT

A. Application for Payment Forms: Use AIA original current editions of G702, Application and Certificate for Payment, and AIA G703, Continuation Sheet, or a similar electronic format with the same information.

B. Preparation of Applications for Payment: Complete form entirely.
1. Make current application consistent with previous applications, certificates for payment, and payments made.
2. Base the application on the current schedule of values, and work completed or stored on site only.
3. Include the amounts of modifications issued before the end of the construction period covered by the application.
4. Include the signature by person authorized by the contractor to sign legal documents.
5. Notarize each copy.
6. Submit in 4 copies.
7. Submit Sales Tax report form as required.

C. Transmit application for payment with a transmittal form itemizing supporting documents attached.
1. Transmit to the Architect.

3.3 WAIVERS OF LIEN

A. With final application for payment, submit complete waivers of lien from every entity who may be legally entitled to file a mechanic's or other lien against the work.

B. Contractor’s Affidavit of Release of Liens Forms: Use AIA form G706A.

3.4 FIRST PAYMENT PROCEDURE

A. The first application for payment will not be reviewed until the following submittals have been received:
1. Certificates of insurance.
2. Performance and payment bonds.
3. Schedule of Values.
4. List of subcontractors, principal suppliers, and fabricators.

5. Contractor's construction schedule.
6. All submittals specified to occur prior to first application for payment or prior to first payment.

3.5 MODIFICATION PROCEDURES

A. Designate a single individual authorized to receive change documents and who will be responsible for informing others of changes to the work.

B. Changes in cost resulting from modifications shall include only those costs specified elsewhere in the contract documents.

C. When requested in writing, the contractor shall provide sufficient information for evaluation of proposed changes within 14 days.

D. Provide the following information for every change proposal request:
1. The amount of change in the contract sum, if any.
2. The amount of change in the contract time, if any, with explanation.
3. Cost breakdown, using schedule of values line items, separated into material and labor costs, additions and deletions, and with overhead and profit handled in the same manner as specified for the schedule of values.
4. The period of time within which the proposed changes in contract sum or time will be valid.
5. A statement describing the effect the change may have on the work of other prime contractors.
6. Upon request, provide the following information:
   a. Quantities and unit costs of products, labor, and equipment.
   b. Taxes, insurance, and bonds.
   c. Overhead and profit.

3.6 FINAL COMPLETION PROCEDURES

A. Submit the following with application for payment following final completion:
1. Contractor's affidavit of release of liens.
2. Meter readings of all utilities services for which the Contractor has been paying.
3. Request for reduction or release of retainage.
4. Consent of Surety to reduction in or partial release of retainage.
5. Final list of incomplete work.
6. Other data required by the contract documents.

3.7 FINAL COMPLETION PROCEDURES

A. Procedures
1. Contractor shall perform their own punch list inspection and submit to Architect the list with corrective actions taken.
2. Architect will perform punch list inspection and submit to contractor.
3. Contractor to perform all corrective action required and submit to Architect all actions taken and then read for final inspection.
4. Architect will review contractor’s corrective actions taken and if ready, will notify SCO for final inspection.

B. Request for final inspection and final applications for payment may coincide.

C. The Architect will perform inspection for final completion, upon request of the Contractor.
1. Submit the following with request for inspection:
   a. Previous inspection lists indicating completion of all items.
   b. If any items cannot be completed, obtain prior approval of such delay.

D. Submit the following with the final application for payment:
   1. Certified copy of the previous list of items to be completed or corrected, stating that each has been completed or otherwise resolved for acceptance.
   2. Updated final statement, accounting for final changes to the contract sum.
   3. Consent of Surety to Final Payment.
   4. Meter readings of all utilities services for which the Contractor has been paying after substantial completion.
   5. Certification that financial obligations to governing authorities and public utilities have been fulfilled.
   6. Description of unsettled claims.
   7. Owner's Manuals and Warranties.
   8. Any other data required by the contract documents.

END OF SECTION 01027

SECTION 01045 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: This Section establishes general requirements pertaining to cutting (including excavating), fitting, and patching of the Work required to:
   1. Make the several parts fit properly;
   2. Uncover work to provide for installing, inspection, or both, of ill-timed work;
   3. Remove and replace work not conforming to requirements of the Contract Documents; and
   4. Remove and replace defective work.

B. Related work:
   1. In addition to other requirements specified, upon the Architect's request, uncover work to provide for inspection by the Architect of covered work, and remove samples of installed materials for testing.
   2. Do not cut or alter work performed under separate contracts without the Architect's written permission.

1.2 SUBMITTALS

A. Request for Architect's consent:
   1. Prior to cutting which effects structural safety, submit written request to the Architect for permission to proceed with cutting.
   2. Should conditions of the Work, or Schedule, indicate a required change of materials or methods for cutting and patching, so notify the Architect and secure his written permission and the required Change Order prior to proceeding.

PART 2 - PRODUCTS

2.1 MATERIALS

A. For replacement of items removed, use materials complying with pertinent Sections of these Specifications.

B. All concrete patching to be done with low moisture, non-shrink grout.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Inspection:
   1. Inspect existing conditions, including elements subject to movement or damage during cutting, excavating, patching, and backfilling.
   2. After uncovering the work, inspect conditions affecting installation of new work.

B. Discrepancies
   1. If uncovered conditions are not as anticipated, immediately notify the Architect and secure needed directions.
   2. Do not proceed until unsatisfactory conditions are corrected.

3.2 PREPARATION PRIOR TO CUTTING

A. Provide required protection including, but not necessarily limited to, shoring, bracing, and support to maintain structural integrity of the Work.

3.3 PERFORMANCE

A. Perform required excavating and backfilling as required under pertinent other Sections of these Specifications.
   1. Perform cutting and demolition by methods which will prevent damage to other portions of the Work and provide proper surfaces to receive installation of repair and new work.
   2. Perform fitting and adjusting of products to provide finished installation complying with the specified tolerances and finishes.

END OF SECTION 01045

SECTION 01090 - ABBREVIATIONS AND SYMBOLS

PART 1 - GENERAL

1.1 REFERENCE TO APPLICABLE STANDARDS

A. Wherever reference is made to Codes, Standards Specifications or other data published by regulating agencies or accepted organizations, it shall be understood that such reference is made to the latest edition, (including addenda) published prior to the date of Contract Documents, except as noted specifically otherwise by date in the contract documents.

B. Abbreviations and symbols used in the Specifications can be grouped into three (3) basic categories:
1. Abbreviations of reference symbols.
2. Abbreviations of words and phrases.
3. Symbols.

C. Among those which may be used in the Contract Documents are the following (with respective abbreviation used):

AA	Aluminum Association
AAMA	Architectural Aluminum Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
ABMA	American Boiler Manufacturers Association
ACI	American Concrete Institute
ACRI	Air Conditioning and Refrigeration Institute
ADC	Air Diffusion Council
AFI	Air Filter Institute
AGA	American Gas Association
AGCA	Associated General Contractors of America, Inc.
AIA	American Institute of Architects
AIMA	Acoustical and Insulating Materials Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALS	American Lumber Standards
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute, Inc.
APA	American Plywood Association
API	American Petroleum Institute
ARI	Air Conditioning and Refrigeration Institute
ASAHC	American Society of Architectural Hardware Consultants
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for testing and Materials
ATI	Asphalt Tile Institute
AWI	Architectural Woodwork Institute
AWPA	American Wood Preservers Association
AWPI	American Wood Preservers Institute
AWS	American Welding Society

BHMA	Builders Hardware Manufacturers Association
BIA	Brick Institute of America
BRI	Building Research Institute
CABRA	Copper and Brass Research Association
CAGI	Compressed Air and Gas Institute
CE	Corps of Engineers (Army)
CRSI	Concrete Reinforcing Steel Institute
CSI	Construction Specifications Institute
CTI	Cooling Tower Institute
DFPA	Douglas Fir Plywood Association
ETL	Electrical Testing Laboratories
FGMA	Flat Glass Marketing Association
FHA	Federal Housing Administration
FM	Factory Mutual Engineering Division, Association of Factory Mutual Fire Insurance Companies
FPL	Forest Products Laboratory
FS	Federal Specifications
FTI	Facing Tile Institute
GA	Gypsum Association
GTA	Glass Tempering Association
HPMA	Hardwood Plywood Manufacturers Association
IBRM	Institute of Boiler and Radiator Manufacturers
IEEE	Institute of Electrical and Electronics Engineering
IES	Illuminating Engineering Society
JAN	Joint Army-Navy Specifications
MAC	Masonry Advisory Council
MIA	Marble Institute of America
MLMA	Metal Lath Manufacturers Association
MS	Military Specifications
MSS	Manufacturers Standardization Society of the Valves and Fitting Industries
MSTD	Military Standard
NAAMM	National Association of Architectural Metal Manufacturers
NAFM	National Association of Fan Manufacturers
NAPF	National Association of Plastic Manufacturers
NBHA	National Builders Hardware Association
NBS	National Bureau of Standards
NCMA	National Concrete Masonry Association
NEC	National Electric Code (NFPA Pamphlet No. 70)
NEMA	National Electric Manufacturers Association
NEMI	National Elevator Manufacturing Industry, Inc.
NFC	National Fire Code
NFPA	National Fire Protection Association
NFPA	National Forest Products Association
NHLA	National Hardwood Lumber Association
NHPMA	Northern Hardwood and Pine Manufacturers Association
NPA	National Particleboard Association
NPCA	National Paint and Coatings Association
NRMCA	National Ready Mixed Concrete Association
NSC	National Safety Council
NSF	National Sanitation Foundation
NTMA	The National Terrazzo and Mosaic Association, Inc.
NWMA	National Woodwork Manufacturers Association
OSHA	Occupational Safety and Health Administration

PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
PEI	Porcelain Enamel Institute, Inc.
PS	Product Standard, U.S. Department of Commerce
RIS	Redwood Inspection Service
RTI	Resilient Tile Institute
SAE	Society of Automotive Engineers
SBI	Steel Boiler Institute
SCMA	Southern Cypress Manufacturers Association
SDI	Steel Deck Institute
SDI	Steel Door Institute
SJI	Steel Joint Institute
SMACCNA	Sheet Metal and Air Conditioning Contractors National Association
SMFMA	Sprayed Mineral Fiber Manufacturers Association, Inc.
SPIB	Southern Pine Inspection Bureau
SSPC	Steel Structures Painting Council
SWFPA	Structural Wood Fiber Products Association
TCA	Tile Council of America
TEMA	Tubular Exchange Manufacturing Association
TIMA	Thermal Insulation Manufacturers Association
TPI	Truss Plate Institute
UL	Underwriter's Laboratories, Inc.
UPC	Uniform Plumbing Code
WRI	Wire Reinforcement Institute
WWPA	Western Wood Products Association

1.2 ABBREVIATIONS OF WORDS AND PHRASES

A. Abbreviations of words and phrases applicable to this Project; other than listed above for reference standards, shall be as shown on the Drawings.

1.3 SYMBOLS

A. Symbols representing construction materials and the equipment applicable to this Project shall be as shown on the Drawings.

PART 2 & 3 - NOT USED.

END OF SECTION 01090

SECTION 01200 - PROJECT MEETINGS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: To enable orderly review during progress of the Work, and to provide for systematic discussion of problems, the Architect will conduct project meetings throughout the construction period.

B. Related work:
1. The Contractor's relations with his subcontractors and materials suppliers, and discussions relative thereto, are the Contractor's responsibility and normally are not part of project meetings content.

1.2 SUBMITTALS

A. Agenda items: To the maximum extent practicable, advise the Architect at least 24 hours in advance of project meetings regarding items to be included in or added to the agenda.

B. Minutes:
1. The Architect will compile minutes of each project meeting and will furnish one copy to each Contractor and required copies to the Owner.
2. Recipients of copies may make and distribute such other copies as they wish.

1.3 QUALITY ASSURANCE

A. For those persons designated by the Contractor to attend and participate in project meetings, provide required authority to commit the Contractor to solutions agreed upon in the project meetings.

PART 2 - PRODUCTS

(No products are required in this Section)

PART 3 - EXECUTION

3.1 GENERAL

A. Except as noted below for Preconstruction Meeting, project meetings will be held monthly,

B. Coordinate as necessary to establish mutually acceptable schedule for meetings.

3.2 PRECONSTRUCTION MEETING

A. Preconstruction Meeting will be scheduled to be held by the Architect prior to the written Notice to Proceed.
1. Provide attendance by authorized representatives of the Contractors and major sub-contractors.

2. The Architect will advise other interested parties, including the Owner and SCO representative.

B. Minimum agenda: Data will be distributed and discussed on at least the following items:

1. Organizational arrangement of Contractor's forces and personnel, and those of subcontractors, materials suppliers, and Architect.
2. Channels and procedures for communication.
3. Construction schedule, including sequence of critical work.
4. Contract Documents, including distribution of required copies of original Documents and revisions.
5. Processing of Shop Drawings and revisions.
6. Processing of Bulletins, field decisions, and Change Orders.
7. Rules and regulations governing performance of the Work; and
8. Procedures for safety and first aid, security, quality control, housekeeping, and related matters.

3.3 PROJECT MEETINGS

A. Attendance:
1. To the maximum extent practical, assign the same person or persons to represent the Contractor at project meetings throughout progress of the Work.
2. Subcontractors, materials suppliers, and others may be invited to attend those project meetings in which their aspect of the Work is involved.
3. Representative from the owner.

B. Minimum agenda:
1. Review progress of the Work since last meeting, including status of submittals for approval.
2. Identify problems which impede planned progress.
3. Develop corrective measures and procedures to regain planned schedule.

Complete other current business.

END OF SECTION 01200

SECTION 01310 - SCHEDULES AND REPORTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General Conditions and other Division 1 specifications sections, apply to work of this section.

1.2 DESCRIPTION

A. Post Award Requirements
   1. Draft of Construction Schedule: Within two weeks of Date of Commencement of the Work, Contractor shall complete Construction Schedule. (Bar chart is acceptable.)
   2. Level of Detail: Except for procurement and General Conditions requirements, differentiate activities on schedule so that no single activity shown requires more than twenty-one (21) calendar days to complete.

B. Schedule of Values
   1. Within seven (7) days after completion of Construction Schedule and before first pay request, Contractor shall submit Schedule of Values (see Section 01370) for review by the Architect allocating a dollar value for each activity on Construction Schedule. Dollar value for each activity will include cost broken into labor, materials, and pro rata contribution to overhead and profit. Subcontract sums will be identified on the Schedule of Values and broken down as described above.

C. Approval
   1. Approval of Construction Schedule and Schedule of Values will be signified by the Architect and Contractor's joint signatures on one copy of each document. Thereafter, Project will be monitored with Construction Schedule, which Contractor shall use in planning, organizing, directing, coordinating, and executing the Work and which shall be the basis for evaluating the progress of the Work.

D. Schedule Revisions
   1. General: Revisions to approved Construction Schedule must be approved in writing by Architect and Contractor.
   2. Contractor: Submit requests for revisions to schedule to Architect together with written rationale and description of logic for rescheduling work to maintain Specific Contractual Milestone Dates.
      a. Proposed revisions acceptable to the Architect will be incorporated into next update of Construction Schedule by the Contractor.
   3. Owner: Changes initiated by Owner and implemented by Change Orders which have potential to affect critical dates will require Contractor to prepare revised schedule for the Architect's concurrence. The Architect's approved revisions will be incorporated into the Construction Schedule. Adjustments in scheduled completion dates, either for intermediate activities or for Contract as a whole, will be considered only to extent that there is not sufficient float to absorb the revisions accepted.

E. Recovery Schedule

1. General: Should updated Construction Schedule show Contractor to be fourteen (14) or more days behind schedule at any time during construction, the Architect may require Contractor to prepare Recovery Schedule, which will display Contractor's plan for returning to schedule within subsequent pay period.
2. Schedule Preparation: Within seven (7) days after notice from the Architect, prepare and submit to the Architect a Recovery Schedule, incorporating best available information from Subcontractors and others which will permit return to Construction Schedule within subsequent pay period. Prepare Recovery Schedule to same level of detail as Construction Schedule.
3. Schedule Assessment: Seven (7) days prior to expiration of Recovery Schedule, confer with the Architect to assess effectiveness of Recovery Schedule. As a result of this conference, the Architect will direct Contractor as follows:
4. Behind Schedule: If the Architect determines Contractor is still behind schedule, the Architect will direct Contractor to prepare another Recovery Schedule for subsequent pay period.
5. On Schedule: If the Architect determines Contractor has successfully complied with provisions of Recovery Schedule, the Architect will direct Contractor to return to use of Construction Schedule.

PARTS 2 & 3 - NOT USED.

END OF SECTION 01310

SECTION 01340 - SUBMITTALS AND SUBSTITUTIONS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Make submittals required by the Contract Documents, and revise and resubmit as necessary to establish compliance with the specified requirements.

B. Related work:
1. Documents affecting work of this Section include but are not necessarily limited to General Conditions Amendments to General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Individual requirements for submittals also may be deceived in pertinent Sections of these Specifications.

C. Work not included:
1. Unrequired submittals will not be reviewed by the Architect.
2. The Contractor may require his subcontractors to provide drawings, setting diagrams, and similar information to help coordinate the Work, but such data shall remain between the Contractor and his subcontractors and will not be reviewed by the Architect.

1.2 SUBMITTALS

A. Make submittals of Shop Drawings, Samples, substitution requests, and other items in accordance with the provisions of this Section.

B. Coordination of Submittals:
1. Prior to each submittal, the Contractor carefully review and coordinate all aspects of each item being submitted.
2. Verify that each item and the submittal for it CONFORMS IN ALL RESPECTS to the specified requirements.
3. By affixing his signature to each submittal, the Contractor certifies that THIS COORDINATION HAS BEEN PERFORMED.
4. The Contractor shall stamp the shop drawings as "Approved" or "Approved as Noted" before submitting to Architect for review.

C. The Architect is not obligated to the use of Procore or other Construction Management Software.

1.3 QUALITY ASSURANCE

A. "Equals" and "Substitutions"
1. The Contract is based on the standards of quality established in the Contract Documents. Requests for substitutions will be considered when submitted according to the procedures set forth below.
a. Particularly with regard to MAJOR materials, equipment or methods proposed for the Work as set forth in the Contract Documents, Contractor's request(s) for approvals of "equals" not specifically named in the Contract Documents MUST BE SUBMITTED IN WRITING with supporting documentation, and inn the hands of the Architect no less than fourteen (14) days, prior to bid date. Telephone requests for consideration of proposed "equals" will not be accepted.

b. On other items of Work, Contractor may request consideration of substitution, when submitted in writing with supporting documentation within fourteen (14) days following the Notice to Proceed.

B. Where the phrase "or equal" or "equal as approved by Architect" occurs in the Contract Documents, do not assume that the Contractor's choice of materials, equipment, or methods will be approved as equal unless the item has been specifically approved for this Work by the Architect.

C. Do not substitute materials, equipment, or methods unless such substitution has be specifically approved in writing for this Work by the Architect.

PART 2 - PRODUCTS

2.1 SHOP DRAWINGS

A. Scale and Measurements: Make Shop Drawings accurately to a scale sufficiently large to show all pertinent aspects of the item and its methods of connection to the Work.

B. Types of prints required:
1. Submit Shop Drawings in the form of five blueline or blackline prints of each sheet; Architect will retain one copy.

C. Review comments of the Architect will be shown in red on prints and returned to the Contractor. The Contractor may make and distribute such copies as are required for his purposes.

2.2 MANUFACTURER'S LITERATURE

A. Where contents of submitted literature from the manufacturers include data not pertinent to the submittal, clearly show which portions of the contents are being submitted for review.

B. Submit three copies of each which are required to be returned, plus one copy which will be retained by the Architect.

2.3 SAMPLES

A. Provide Sample or Samples identical to the precise article proposed to be provided. Identify as described under "Identification of Submittals" below.

B. Number of Samples required:
1. Unless otherwise specified, submit one sample in the quantity which is required to be returned, plus on which will be retained by the Architect.
2. By prearrangement in specific cases, a single Sample may be submitted for review and, when approved, be installed in the Work at a location agreed upon by the Architect.
3. Except as noted in 2.3.B.2 above, no selections of color, texture or finish will be approved by the Architect until ALL substitutions have been approved by the Architect, and ALL necessary samples and color, texture, finish proposals have been submitted in their entirety by the Contractor, in order that a coordinated, total scheme may be developed by the Architect.

PART 3 - EXECUTION

3.1 IDENTIFICATION OF SUBMITTALS

A. Consecutively number all submittals.
   1. When material is resubmitted of any reason, transmit under a new letter of transmittal and with a new transmittal number.
   2. On re-submittals, cite the original submittal number for reference.

B. Accompany each submittal with a letter of transmittal showing all information required for identification and checking.

C. On at least the first page of each submittal, and elsewhere as required for positive identification, show the submittal number in which the item was included.

D. Maintain an accurate submittal log for the duration of the Work, showing current status of all submittals at all times. Make the submittal log available to the Architect for his review upon request.

3.2 GROUPING OF SUBMITTALS

A. Unless otherwise specified, make submittals in groups containing all associated items to assure that information is available for checking each item when it is received.
   1. Partial submittals may be rejected as not complying with the provisions of the Contract.

3.3 TIMING OF SUBMITTALS

A. Make submittals far enough in advance of schedule dated for installation to provide time required for reviews, for securing necessary approvals, for possible revisions and re-submittals, and for placing orders and securing delivery. All submittals shall be submitted within thirty (30) days of the notice to proceed.

3.4 ARCHITECT'S REVIEW

A. Review by the Architect does not relieve the Contractor from responsibility for errors which may exist in the submitted data.

B. Revisions:
   1. Make revisions required by Architect.
   2. If the Contractor considers any required revision to be a change, he shall so notify the Architect as provided in the General Conditions.
   3. Make only those revisions directed or approved by the Architect.

END OF SECTION 01340

SECTION 01370 - SCHEDULE OF VALUES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Provide a detailed breakdown of the agreed Contract sum showing values allocated to each of the various parts of the Work, as specified herein and in other provisions of the Contract Documents.

B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Amendments to General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Schedule of values may be described on the continuation sheet of AIA document G702 accompanying applications for payment.

1.2 SUBMITTALS

A. Prior to first application for payment, submit a proposed schedule of values to the Architect. See Section 01310.
1. Meet with the Architect and determine additional data, if any, required to be submitted.
a. Mobilization, Submittal Review, Material Delivery, Execution of the Work, and Punch listing shall be included in the schedule.

2. Secure the Architect's review of the schedule of values prior to submitting first application for payment.

PART 2 & 3 - NOT USED.

END OF SECTION 01370

SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Provide temporary facilities and controls needed for the Work including, but not necessarily limited to:
   1. Temporary utilities such as heat, water, electricity, facsimile machine, and telephone. (Onsite water and electricity may be used)
   2. Sanitary facilities.
   3. Enclosures such as tarpaulins, barricades, and canopies.
   4. Project sign.

B. Related work:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Amendments to General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
   2. Except that equipment furnished by subcontractors shall comply with requirements of pertinent safety regulations, such equipment normally furnished by the individual trades in execution of their own portions of the Work are not part of this Section.
   3. Permanent installation and hookup of the various utility lines are described in other Sections.

1.2 PRODUCT HANDLING

A. Maintain temporary facilities and controls in proper and safe condition throughout progress of the Work.

1.3 LOCAL REGULATIONS

A. Comply with all local ordinances and owner regulations, including local and temporary facilities, parking and storage.

PART 2 - PRODUCTS

2.1 UTILITIES

A. Water:
   1. Provide necessary temporary piping, upon completion, remove such temporary facilities.
   2. Existing onsite water may be used.

B. Electricity:
   1. Provide necessary temporary wiring and, upon completion of the Work, remove such temporary facility.
   2. Provide area distribution boxes so located that the individual trades may obtain power and lighting at points where needed for work, inspection, and safety.
   3. Existing metered electricity may be used, coordinate use with owner.

C. Heating: Provide and maintain heat necessary for proper conduct of operations needed in the Work.

D. Telephone:
1. Make necessary arrangements and pay costs for installation and operation of email to the Contractor's office at the site.
2. Make the telephone available to the Architect for use in connection with the Work.

E. Email:
1. Make necessary arrangements and pay costs for installation and operation of email to the Contractors office at the site.
2. Make the email available to the Architect for use in connection with the Work.

2.2 FIELD STORY SHEDS

A. Contractors facilities:
1. Provide storage sheds adequate in size and accommodation for Contractors, supply and storage.
2. Within the Contractor's facilities, provide enclosed space adequate for holding project meetings.
3. Location of storage and staging area is limited and must be approved by owner.
4. The existing building will be utilized as a Contractor’s temporary office, shared with NCSPA staff during construction.

B. Sanitary facilities:
1. Provide temporary sanitary facilities in the quantity required for use by all personnel.
2. Maintain in a sanitary condition at all times.

2.3 ENCLOSURES

A. Provide and maintain for the duration of construction all scaffolds, tarpaulins, canopies, warning signs, steps, platforms, bridges, and other temporary construction necessary for proper completion of the Work in compliance with pertinent safety and other regulations.
1. All apparatus, equipment, temporary and permanent construction shall meet all local and State labor laws and safety regulations applicable thereto.

2.4 PROJECT SIGN

A. It shall be the responsibility of the General Contractor to have constructed, painted, mounted, etc. and installed a project sign, as shown on drawing by the Architect.

B. Upon completion of the Work, demount the job sign and dispose of property.

C. Except as otherwise specifically approved by the Architect, do not permit other signs or advertising on the job site.

PART 3 - EXECUTION

3.1 MAINTENANCE AND REMOVAL

A. Maintain temporary facilities and controls as long as needed for safe and proper completion of the Work.

B. Remove such temporary facilities and controls as rapidly as progress of the Work will permit, or as directed by the Architect.

3.2 TRAFFIC COORDINATION

A. Any construction related activities, such as receiving, loading, unloading, or other activities which may be an interruption to normal vehicular traffic flow on the campus shall be coordinated in advance by the Contractor with the public authority having jurisdiction.

END OF SECTION 01500

SECTION 01620 - PRODUCT HANDLING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Protect products scheduled for use in the Work by means including, but not necessarily limited to, those described in this Section.

1.2 MANUFACTURERS' RECOMMENDATIONS

A. Except as otherwise approved by the Architect, determine and comply with manufacturers' recommendations on product handling, storage, and protection.

1.3 PACKAGING

A. Deliver products to the job site in the manufacturer's original containers, with labels intact and legible.
   1. Maintain packaged materials with seals unbroken and labels intact until time of use.
   2. Promptly remove damaged material and unsuitable items from the job site, and promptly replace with material meeting the specified requirements, at no additional cost to the Owner.

B. The Architect may reject as non-complying, material and products that do not bear identification satisfactory to the Architect as to manufacturer, grade, quality, and other pertinent information.

1.4 PROTECTION

A. Protect finished surfaces, including jambs and soffits of openings used as passageways, through which equipment and materials are handled.

B. Provide protection for finished floor surfaces in traffic areas prior to allowing equipment or materials to be moved over such surfaces.

C. Maintain finished surfaces clean, unmarred, and suitably protected until accepted by the Owner.

1.5 REPAIRS AND REPLACEMENTS

A. In the event of damage, promptly make replacements and repairs to the approval of the Architect, and at no additional cost to the Owner.

PART 2 & 3 - NOT USED.

END OF SECTION 01620

SECTION 01710 - CLEANING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Throughout the construction period, maintain the building and site in a standard of cleanliness as described in this Section.

B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Amendments to General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. In addition to standards described in this Section, comply with requirements for cleaning as described in pertinent other Sections of these Specifications.

1.2 QUALITY ASSURANCE

A. Conduct daily inspection to verify that requirements for cleanliness are being met.

B. In addition to the standards described in this Section. Comply with pertinent requirements of governmental agencies having jurisdiction.

PART 2 - PRODUCTS

2.1 COMPATIBILITY

A. Use only the cleaning materials and equipment which are compatible with the surface being cleaned, as recommended by the manufacturer of the material.

PART 3 - EXECUTION

3.1 PROGRESS CLEANING

A. General:
1. Retain stored items in an orderly arrangement allowing maximum access, not impeding traffic or drainage, and providing required protection of materials.
2. Do not allow accumulation of scrap, debris, waste material, and other items not required for construction of this Work.
3. At least once per day, and more often if necessary, completely remove all scrap, debris, and waste material from the job site.
4. Provide adequate storage for all items awaiting removal from the job site, observing requirements for fire protection and protection of the ecology.
5. The building shall be cleaned daily of all debris and waste material resulting from the construction operations.

END OF SECTION 01710

SECTION 02200 - EARTHWORK FOR BUILDING

PART 1 - GENERAL

1.1 SUMMARY

A. This section includes the following:

1. Preparing and grading sub-grades for slabs on grade and walks.

B. Related Documents:

1. Division 0 – Bidding and General Conditions, Division 1 – General Requirements, all applicable provisions in the technical specifications section of Division 2 through 16 and applicable drawings.

1.2 DEFINITIONS

A. Excavation consists of the removal of material encountered to subgrade elevations and the reuse of materials removed or the removal to designated areas of surplus suitable material.

B. Subgrade is the uppermost surface of an excavation or the top surface of a fill or backfill immediately below sub-base, drainage fill, or topsoil materials.

C. Borrow is soil material obtained when sufficient approved soil material is not available from excavations.

D. Sub-base Course is the layer placed between the subgrade and base course in a paving system or the layer placed between the subgrade and surface of a pavement or walk.

E. Base Course is the layer placed between the sub-base and surface pavement in a paving system.

F. Drainage Fill is a course of washed granular material supporting slabs-on-grade placed to cut off upward capillary flow of pore water.

G. Unauthorized Excavation consists of removing materials beyond indicated subgrade elevations or dimensions without direction by the Engineer. Unauthorized excavation, as well as remedial work directed by the Engineer, shall be at the Contractor's expense.

1.3 EXISTING CONDITIONS

A. Existing Utilities: Do not interrupt existing utilities serving facilities occupied by the Owner or others except when permitted in writing by the Engineer and then only after acceptable temporary utility services have been provided or arrangements suitable to the Owner have been made.

PART 2 - MATERIALS

2.1 SOIL MATERIALS

A. Satisfactory Soil Materials: ASTM D 2487 soil classification groups SW, SP and SM or SM-SC; free of rock or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetation, or other deleterious matter. Satisfactory soil material shall have the following characteristics:

1. Low Plasticity Soil - liquid limit less than 50 and P.I. less than 20.
2. Percent passing the 200 sieve: less than 15%
3. Standard Proctor Maximum Dry Density (MDD): 95 percent or greater.
4. Moisture Content - within 2 percent of optimum.

B. Sub-base and Base Materials: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand with at least 95 percent passing a 1 1/2-inch sieve and not more than 12 percent passing a No. 200 sieve and conforming to ASTM D 2940.

C. Engineered Fill: Sub-base or base materials.

D. Bedding Material: Sub-base materials with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.

E. Drainage Fill: Washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel, coarse aggregate grading size 57, with 100 percent passing a 1-1/2-inch sieve and not more than 5 percent passing a No. 8 sieve and conforming to ASTM D 448.

F. Aggregate Base Course: Aggregate Base Course - ABC - shall meet requirements and specifications of current NCDOT Specifications Manual.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Protect sub-grades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.

3.2 DEWATERING

A. Prevent surface water and subsurface or groundwater from entering excavations, from ponding on prepared sub-grades, and from flooding Project site and surrounding area.

B. Protect sub-grades and foundation soils from softening and damage by rain or water accumulation.

3.3 EXCAVATION

A. Explosives: Do not use explosives.

B. Stability of Excavations: Maintain stable excavations in compliance with all applicable local, state, and federal regulations.

C. Excavation of Weak Soils: Excavate areas of weak soils to the depth as directed by the Geotechnical Engineer. Removal and replacement of unsuitable soils will be the responsibility of the Owner.

D. Excavation for Structures: See Section 02201.

E. Excavation for Walks: Excavate for walks to indicated elevations, dimensions, cross sections, and grades. Widen excavations to permit placing and removing concrete formwork, installing services and other construction and for inspections. Trim sub-grades

to required lines and grades to leave solid base to receive other work.

3.4 APPROVAL OF SUB-GRADES

A. Notify Architect when excavations have reached required subgrade.

B. If unforeseen unsatisfactory soil is encountered, notify Architect immediately and prior to continuing excavation. The Engineer will monitor excavation and replacing the depression and shall determine quantity of additional payment.

C. Reconstruct sub-grades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities as directed by the Architect at no expense to Owner.

3.5 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation by extending indicated bottom elevation of sub-base, base, or bedding materials to excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position when acceptable to the Architect.

B. Fill unauthorized excavations under other construction as directed by the Architect.

3.6 STORAGE OF SOIL MATERIALS

A. Store excavated and borrow soil materials acceptable for backfill and fill in shaped, graded, and drained stockpiles. Locate stockpiles away from edge of excavations. Provide measures that prevent water or wind erosion and displacement of stockpile areas when remaining stockpiled for a period of more than 30 working days.

3.7 BACKFILL

A. Backfill excavations promptly following:

1. Acceptance of construction below finished grade including, where applicable, dampproofing, waterproofing, and perimeter insulation.
2. Surveying of underground utilities for record documents.
3. Testing, inspection, and approval of underground utilities.
4. Removal of concrete formwork.
5. Removal of trash and debris from excavation.
6. Removal of temporary shoring and bracing, and sheeting.

3.8 FILL

A. Preparation:

1. When subgrade or existing ground surface to receive fill has a density less than that required for fill, break up ground surface to depth required, pulverize, moisture-condition or aerate soil, and re-compact to required density.

2. Place fill materials in layers of the specified thickness to required elevations as shown on the construction drawings.

B. Moisture Control: Prior to compaction, uniformly moisten or aerate subgrade and each subsequent fill or backfill layer to within 2 percent of optimum moisture content.

1. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

2. Remove and replace or scarify and air-dry satisfactory soil material that is too wet to compact to specified density.

3. Stockpile or spread and dry removed wet satisfactory soil material.

C. Compaction: Place backfill and fill materials in layers not more than 8 to 10 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers. Place evenly on all sides and along the full length of structures and utilities to required elevations.

1. Moisture content at compaction shall be -2% to +2% of Optimum Moisture Standard Proctor MDD.

2. Compact fill material to not less than the following percentages of maximum dry density according to ASTM D 698:

D. Under and 5 feet outside building slabs, footings and foundations.

E. Under walks and pavements: Compact each layer of backfill or fill material, except the top 12 inches to 95 percent of Standard Proctor MDD. Compact the top 12 inches to 98 percent Standard Proctor MDD.

3.9 GRADING

A. Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

B. Provide a smooth transition between existing adjacent grades and new grades.

C. Cut out soft spots, fill low spots, and trim high spots to conform to required surface tolerances.

D. Slope grades to direct water away from buildings and to prevent ponding.

E. Finish sub-grades to required elevations and within the following tolerances:

F. Within building lines: 1/2 inch when tested with a ten-foot straightedge.

G. When final subgrade is reached, if under walks or structures, immediately place a six-inch layer of compacted crushed stone to protect against moisture damage. If stone becomes contaminated with soil, replace as necessary prior to paving. On areas outside of paved areas, immediately stabilize with seeding and mulching and protect from vehicular traffic and erosion. At contractor's option, areas may be covered with stone which will be removed prior to placing of topsoil, seeding, mulching, or landscaping.

3.10 SUB-BASE AND BASE COURSES

A. Place base and sub-base courses to the grades and elevations shown on the drawings and in accordance with the following:

B. Not Used

C. Not Used

D. Under steps and ramps: Use sub-base material.

E. Under walks: Use satisfactory excavated or borrow soil material.

F. Shape base to required crown elevations and cross-slope grades.

G. When thickness of compacted base course is 6 inches or less, place materials in a single layer. When thickness exceeds 6 inches, place material in equal layers, with no layer more than 6 inches thick or less than 3 inches thick when compacted.

3.11 DRAINAGE FILL

A. Place drainage fill course on prepared subgrade under proposed slabs-on-grade.

B. Compact drainage fill to required cross sections and thickness. When thickness of compacted drainage fill is 6 inches or less, place materials in a single layer. When thickness exceeds 6 inches, place material in equal layers, with no layer more than 6 inches thick or less than 3 inches thick when compacted.

3.12 FIELD QUALITY CONTROL

A. Testing of the compacted backfill will be of the following types:

B. Field in-place density tests according to ASTM D 1556 (Sand cone method), ASTM S 2167 (rubber balloon method), or ASTM D 2937 (drive cylinder method), as applicable.

C. Building Slab and Pavement Areas: At subgrade and at each compacted fill and backfill layer, at least one field in-place density test for every 2,000 sq. ft. or less of paved area, but in no case fewer than one tests.

3.13 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or loosely compacted. Scarify or remove and replace material, reshape and re-compact at optimum moisture content to the required density.

C. Settling: Where settling occurs during the Project correction period, remove finished surfacing, backfill with additional approved material, compact, and reconstruct surfacing.

3.14 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove unsatisfactory soil, trash, and debris, and legally dispose of it off the Owner's property. Remove surplus satisfactory soil material and topsoil and place on Owners property as directed.

END OF SECTION 02200

SECTION 02220

DEMOLITION

PART 1 GENERAL

1.01 RELATED REQUIREMENTS

A. Section 01 1000 – Summary: Limitations on Contractor's use of site and premises.
B. Section 01 5000 – Temporary Facilities and Controls: Site fences, security, protective barriers and waste removal.
C. Section 01 7000 – Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.
D. Section 31 1000 – Site Clearing: Vegetation and existing debris removal.
E. Section 31 2200 – Grading: Topsoil removal.
F. Section 31 2200 – Grading: Fill material for filling holes, pits, and excavations generated as a result of removal operations.

PART 2 EXECUTION

2.01 SCOPE

A. Remove existing stone and sand backfill as needed for installation of the permeable pavers.
B. Fill excavations, open pits, and holes in ground areas generated as results of removals, using specified fill; compact fill as specified in Section 31 2200.

2.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers or other pollution.

2.03 EXISTING UTILITIES

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
B. Protect existing utilities to remain from damage.
C. Do not disrupt public utilities without permit from authority having jurisdiction.
D. Do not close, shut off or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.
E. Do not close, shut off or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.
F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

2.04 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk and trash from site.
B. Leave site in clean condition, ready for subsequent work.
C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECITON

SECTION 02310

GRADING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Removal of topsoil.

B. Rough grading the site for site structures and parking lot..

C. Finish grading.

PART 2 PRODUCTS

2.01 MATERIALS

A. Topsoil: See Section 31 2323.

B. Other Fill Materials: See Section 31 2323.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that survey bench mark and intended elevations for the Work are as indicated.

3.02 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Stake and flag locations of known utilities.

C. Locate, identify, and protect from damage above- and below-grade utilities to remain.

D. Protect site features to remain, including but not limited to bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs, from damage by grading equipment and vehicular traffic.

E. Protect trees to remain by providing substantial fencing around entire tree at the outer tips of its branches; no grading is to be performed inside this line.

F. Protect plants, lawns, rock outcroppings, and other features to remain as a portion of final landscaping.

3.03 ROUGH GRADING

A. Remove topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials.

B. Do not remove topsoil when wet.

C. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded.

D. Do not remove wet subsoil, unless it is subsequently processed to obtain optimum moisture content.

E. When excavating through roots, perform work by hand and cut roots with sharp axe.

F. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.

3.04 SOIL REMOVAL

A. Stockpile topsoil to be re-used on site; remove remainder from site.

B. Stockpile subsoil to be re-used on site; remove remainder from site.

C. Stockpiles: Use areas designated on site; pile depth not to exceed 8 feet; protect from erosion.

3.05 FINISH GRADING

A. Before Finish Grading:

1. Verify building and trench backfilling have been inspected.

2. Verify subgrade has been contoured and compacted.

B. Remove debris, roots, branches, stones, in excess of 1/2 inch in size. Remove soil contaminated with petroleum products.

C. Where topsoil is to be placed, scarify surface to depth of 3 inches.

D. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 3 inches.

E. Place topsoil in areas where seeding are indicated.

F. Place topsoil during dry weather.

G. Remove roots, weeds, rocks, and foreign material while spreading.

H. Near plants spread topsoil manually to prevent damage.

I. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.

J. Lightly compact placed topsoil.

3.06 REPAIR AND RESTORATION

A. Existing Facilities, Utilities, and Site Features to Remain: If damaged due to this work, repair or replace to original condition.

B. Other Existing Vegetation to Remain: If damaged due to this work, replace with vegetation of equivalent species and size.

3.07 CLEANING

A. Remove unused stockpiled topsoil and subsoil. Grade stockpile area to prevent standing water.

B. Leave site clean and raked, ready to receive landscaping.

END OF SECTION

SECTION 02315

EXCAVATION

PART 1 GENERAL

1.01 SELECTION INCLUDES

A. Excavation

1.02 PROJECT CONDITIONS

A. Verify that survey bench mark and intended elevations for the work are as indicated.

PART 2 – NOT USED

PART 3 EXECUTION

3.01 PREPARATION

A. Identify required lines, levels, contours and datum locations.

3.02 EXCAVATING

A. Identify required lines, levels, contours and datum locations.
B. Notify Engineer of unexpected subsurface and constructions and discontinue affected work in area until notified to resume work.
C. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored.
D. Do not interfere with 45 degree bearing splay of foundations.
E. Cut utility trenches wide enough to allow inspection of installed utilities.
F. Hand trim excavations. Remove loose matter.
G. Correct areas that are over-excavated and load bearing surfaces that are disturbed.
H. Grade top perimeter of excavation to prevent surface water from draining into excavation.
I. Remove excavated material that is unsuitable for re-use from site.
J. Remove excess excavated material from site.

3.03 PROTECTION

A. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.
B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

END OF SECITON

SECTION 02316

FILL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Filling, backfilling, and compacting for paving and site structures.

B. Filling holes, pits, and excavations generated as a result of removal (demolition) operations.

1.02 DEFINITIONS

A. Finish Grade Elevations: Indicated on drawings.

1.03 REFERENCE STANDARDS

1.04 DELIVERY, STORAGE, AND HANDLING

A. When necessary, store materials on site in advance of need.

B. When fill materials need to be stored on site, locate stockpiles where indicated.
   1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
   2. Prevent contamination.
   3. Protect stockpiles from erosion and deterioration of materials.

PART 2 PRODUCTS

2.01 FILL MATERIALS

A. General Fill - Fill Type 1: Imported borrow or on site subsoil complying with ASTM D 2487, Types SW, SP, SM, SC.

B. General Fill - Fill Type 2: Subsoil excavated on-site.

C. Structural Fill - Fill Type 3: Conforming to State of North Carolina Highway Department standard.

D. Sand - Fill Type 4: Natural river or bank sand; free of silt, clay, loam, friable or soluble materials, and organic matter.

2.02 SOURCE QUALITY CONTROL

A. If tests indicate materials do not meet specified requirements, change material and retest.

PART 3 EXECUTION

3.01 EXAMINATION

A. Identify required lines, levels, contours, and datum locations.

B. See Section 31 2200 for additional requirements.

3.02 PREPARATION

A. Scarify and proof roll subgrade surface to a depth of 6 inches to identify soft spots.

B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.

C. Compact subgrade to density equal to or greater than requirements for subsequent fill material.

D. Until ready to fill, maintain excavations and prevent loose soil from falling into excavation.

3.03 FILLING

A. Fill to contours and elevations indicated using unfrozen materials.

B. Employ a placement method that does not disturb or damage other work.

C. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.

D. Maintain optimum moisture content of fill materials to attain required compaction density.

E. Slope grade away from building minimum 2 inches in 10 feet, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.

F. Correct areas that are over-excavated.
   1. Other areas: Use general fill, flush to required elevation, compacted to minimum 95 percent of maximum dry density.

G. Compaction Density Unless Otherwise Specified or Indicated:
   1. Under paving and similar construction: 97 percent of maximum dry density.

H. Reshape and re-compact fills subjected to vehicular traffic.

3.04 FILL AT SPECIFIC LOCATIONS

A. Use general fill unless otherwise specified or indicated.

B. Backfill for Undercut Areas: Sand Type 4.

3.05 TOLERANCES

A. Top Surface of General Filling: Plus or minus 1 inch from required elevations.

3.06 CLEANING

A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

END OF SECTION

SECTION 02760

PAINTED PAVEMENT MARKINGS

PART 1 GENERAL

1.01SECTION INCLUDES

A. Parking lot markings, including parking bays.

1.02RELATED REQUIREMENTS

A. Section 32 1216 - Asphalt Paving.

1.03REFERENCE STANDARDS

A. MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association; current edition, www.paintinfo.com.

B. FHWA MUTCD - Manual on Uniform Traffic Control Devices for Streets and Highways; U.S. Department of Transportation, Federal Highway Administration; Current Edition.

1.04DELIVERY, STORAGE, AND HANDLING

A. Deliver paint in containers of at least 5 gallonsaccompanied by batch certificate. Store products in

B. manufacturer's unopened packaging until ready for installation. Store and dispose of solvent-based

C. materials, and materials used with solvent-based materials,
in accordance with requirements of local authorities having jurisdiction.

1.05FIELD CONDITIONS

A. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 PRODUCTS

2.01 MATERIALS

A. Line and Zone Marking Paint: MPI (APL) No. 97 Latex Traffic Marking Paint; color(s) as indicated.

1. Parking Lots: White.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared. If substrate

B. preparation is the responsibility of another installer, notify Engineer of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Allow new pavement surfaces to cure for a period of not less than 14 days before application of marking materials.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Clean surfaces thoroughly prior to installation.

1. Remove dust, dirt, and other granular surface deposits by sweeping, blowing with compressed air, rinsing with water, or a combination of these methods.

D. Where oil or grease are present, scrub affected areas with several applications of trisodium phosphate solution or other approved detergent or degreaser, and rinse thoroughly after each application; after cleaning, seal oil-soaked areas with cut shellac to prevent bleeding through the new paint.

E. Establish survey control points to determine locations and dimensions of markings; provide templates to control paint application by type and color at necessary intervals.

3.03 INSTALLATION

A. Begin pavement marking as soon as practicable after surface has been cleaned and dried.

B. Do not apply paint if temperature of surface to be painted or the atmosphere is less than 50 degrees F or more than 95 degrees F.

C. Apply in accordance with manufacturer's instructions using an experienced technician that is thoroughly familiar with equipment, materials, and marking layouts.

D. Comply with FHWA MUTCD manual (http://mutcd.fhwa.dot.gov) for details not shown.

E. Apply markings in locations determined by measurement from survey control points; preserve control points until after markings have been accepted.

F. Apply uniformly painted markings of color(s), lengths, and widths as indicated on the drawings true, sharp edges and ends.

1. Apply paint in one coat only.
2. Wet Film Thickness: 0.015 inch, minimum.
3. Width Tolerance: Plus or minus 1/8 inch.

G. Parking Lots: Apply parking space lines indicated on drawings.
1. Mark the International Handicapped Symbol at indicated parking spaces.
2. Hand application by pneumatic spray is acceptable.

3.04 DRYING, PROTECTION, AND REPLACEMENT

A. Protect newly painted markings so that paint is not picked up by tires, smeared, or tracked. Provide

B. barricades, warning signs, and flags as necessary to prevent traffic crossing newly painted markings.

C. Allow paint to dry at least the minimum time specified by the applicable paint standard and not less than that recommended by the manufacturer.

D. Remove and replace markings that are applied at less than minimum material rates; deviate from true alignment; exceed length and width tolerances; or show light spots, smears, or other deficiencies or irregularities.

E. Remove markings in manner to avoid damage to the surface to which the marking was applied, using carefully controlled sand blasting, approved grinding equipment, or other approved method.

F. Replace removed markings at no additional cost to Owner.

END OF SECTION

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies cast-in place concrete, including formwork, reinforcing, mix design, placement procedures, and finishes.
B. Concrete paving and walks are specified in Division 2.
C. Finishes and concrete floor toppings are specified in Division 9.
D. Post-tensioned slabs and beams are specified in Section 03365.

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections:
   1. Shop drawings for reinforcement, showing bending, and placement of concrete reinforcement. Comply with ACI 315 “Manual of Standard Practice for detailing Reinforced Concrete Structures” showing bar schedules, bar spacing, diagrams of bent bars, and arrangement of concrete reinforcement. Copies of the contract drawings shall not be marked and submitted as shop drawings.
   2. Concrete Mix Design for each type and strength of concrete shown on the plans.
   3. Laboratory test reports for the following:
      a. Aggregate gradation tests
      b. Concrete mix design tests - Submit test records in accordance with the requirements of ACI 301 and the provisions of this specification.
   4. Materials certificates or manufacturer’s literature signed by manufacturer and Contractor, certifying that each material item complies with the provisions of this specification for the following:
      a. Aggregates
      b. Admixtures
      c. Reinforcement
      d. Cement
      e. Waterstops
   5. Product data for embedded and drilled in place anchors.

1.4 QUALITY ASSURANCE

A. Codes and Standards: Comply with the applicable provisions of the following standards except as modified by the supplemental requirements specified in this section:
   1. ACI 318, "Building Code Requirements for Reinforced Concrete."
   2. ACI 301, “Standard Specification for Structural Concrete”
   3. Concrete Reinforcing Steel Institute (CRSI), "Manual of Standard Practice."

B. Concrete Testing Service: The independent testing agency, including branch office used, referred to in this section shall meet the requirements of ASTM E 329 and shall have been inspected within the past 3 years by the Cement and Concrete Reference Laboratory of the NBS and shall have corrected any deficiencies noted.

C. Materials and installed work may require testing and retesting at any time during progress of work. All retesting of rejected materials for installed work shall be done at Contractor's expense.

PART 2 - PRODUCTS

2.1 FORM MATERIALS

A. Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or other acceptable material. Provide lumber dressed on 4 edges. Structural design of formwork is contractor's responsibility.

B. Form Coatings: Provide commercial formulation form-coating compounds with a maximum VOC of 350 mg/l that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

2.2 REINFORCING MATERIALS

A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.

B. Welded Wire Fabric: ASTM A 185, welded steel wire fabric.

C. Supports for Reinforcement: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Use wire-bar-type supports complying with CRSI specifications.
   1. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
   2. Where concrete will be exposed to view in the finished structure, the portions of all bar supports within 1/2 inch of the concrete surface shall be non-corrosive or protected against corrosion.

2.3 CONCRETE MATERIALS

A. Portland Cement: ASTM C 150, Type I. Use one brand of cement throughout project unless otherwise acceptable to the Engineer.

B. Fly Ash: If used, it shall conform to the following requirements:
   1. Maximum substitution of fly ash for Portland cement shall not exceed 20 percent of cement content by weight.
   2. Fly ash shall meet the requirements of ASTM C 618, Type F, except loss on ignition shall not exceed 4 percent.
   3. Use of fly ash shall be indicated on the mix design submittal.
   4. Submit a Materials Certification to the Engineer indicating the fly ash meets the stated requirements.

C. Aggregates:
   1. General:
      a. Provide hardrock aggregate complying with ASTM C33, with additional attributes as specified herein.
      b. For making grading tests of fine and coarse aggregate, use square mesh wire cloth complying with ASTM E11.
   2. Fine aggregate:
      a. Provide washed natural sand having strong, hard, durable particles, and containing not more than 2% by weight of deleterious matter such as clay lumps, mica, shale, or schist.
      b. Grade from coarse to fine within the following limits for percentage by weight passing sieve:

Sieve Size:	Minimum:	Maximum:
3/8"	100	----

No. 4	95	100
No. 8	65	95
No. 16	45	75
No. 30	30	50
No. 50	10	22
No. 100	2	8

3. Coarse Aggregate:

a. Provide coarse aggregate consisting of clean, hard, fine grained, sound crushed rock or washed gravel, or a combination of both, containing not more than 5% by weight flat, chip-like, thin, elongated, friable, or laminated pieces, not more than 2% by weight of shale or cherty material. Any piece having a length in excess of five times the average thickness shall be considered flat or elongated.

b. Use coarse aggregate of the largest practicable size for each condition of placement, except: Do not exceed ¾ of the clear distance between reinforcing bars, 1/5th of the narrowest dimension between sides of forms, of 1/3rd the depth of any slab section.

c. Grade combined aggregate within the following limits for percentage by weight passing sieve:

Sieve	1-1/2" Aggr.		1" Aggr.		3/4" Aggr.	
Size:	Min	Max	Min	Max	Min	Max
1-1/2"	95	---	---	---	---	---
1"	75	90	90	100	---	---
3/4"	55	77	70	90	90	100
3/8"	40	55	45	65	60	80
No. 4	30	40	31	47	40	60
No. 8	22	35	23	40	30	45
No. 16	16	30	17	35	20	35
No. 30	10	20	10	23	13	23
No. 50	2	8	2	10	5	15
No. 100	0	3	0	3	0	5

D. Water: Drinkable, clean and free from deleterious amounts of acid alkali, salts, and organic materials.

E. Admixtures: Provide admixtures for concrete that contain not more than 0.1 percent chloride ions.
1. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.
2. Water-Reducing Admixture: ASTM C 494, Type A.
3. High-Range Water-Reducing Admixture (Super Plasticizer): ASTM C 494, Type F or Type G.
4. The use of set control additives may only be used with the prior approval of the Engineer. The additives shall only be added at the point of batching.

2.4 OTHER MATERIALS

A. Waterstops: Provide flat, dumbbell-type or centerbulb-type waterstops at all construction joints and other joints as required. Size to suit joints.
1. Rubber Waterstops: Corps of Engineers CRD-C 513.
2. Polyvinyl Chloride Waterstops: Corps of Engineers CRD-C 572.

B. Vapor Barrier: Moistop reinforced or equal (Poly or VisQueen will not be acceptable).

C. Liquid Membrane-Forming Curing Compound: Liquid-type membrane- forming curing compound complying with ASTM C 309, Type I, Class A. Moisture loss not more than 0.055 gr./sq. cm. when applied at 200 sq. Ft./gal.

D. Expansion Joint Material: Self-expanding, non-extruding, 1/2", cork complying with ASTM D 1751.

E. Isolation Joint Material: Shall be the thickness shown on the drawings and shall comply with ASTM D 1751.

2.5 PROPORTIONING AND DESIGN OF MIXES

A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. If trial batch method used, use an independent testing facility acceptable to Engineer for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing.

B. Submit written reports to Engineer of each proposed mix for each type and strength of concrete at least 15 days prior to start of work. Do not begin concrete production until proposed mix designs have been reviewed by the Engineer.

C. Design mixes to provide normal weight concrete with the following properties, unless otherwise indicated on drawings and schedules:
   1. Floor Slabs: 4000-psi, 28-day compressive strength.
   2. Footings and grade beams; 4000-psi, 28-day compressive strength.
   3. Post-tension slabs, cast-in-place walls, columns; 5000psi, 28-day compressive strength.

2.6 ADMIXTURES

A. Use water-reducing admixture or high-range water-reducing admixture (Superplasticizer) in concrete as required for placement and workability.

B. Use high-range water-reducing admixture (HRWR) in pumped concrete, concrete for industrial slabs, architectural concrete, parking structure slabs, concrete required to be watertight, and concrete with water/cement ratios below 0.50.

C. Use air-entraining admixture in all concrete exposed to freezing and thawing. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content of 5 percent with a tolerance of plus or minus 1-1/2 percent. Other concrete not exposed to freezing, thawing, or hydraulic pressure or to receive a surface hardener shall have 2 percent to 4 percent air content.

D. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:
   1. Footings and slabs on grade: Not more than 3 inches.

   4. Concrete containing HRWR admixture (Superplasticizer): Not more than 6 inches after addition of HRWR to site-verified 2-inch slump concrete.
   3. Other concrete: Not more than 4 inches.

2.7 CONCRETE MIXING

A. Job-Site Mixing: not allowed for this project
B. Ready-Mix Concrete:
   1. Comply with requirements of ASTM C 94, and as specified.

2. When air temperature is between 85 deg F (30 deg C) and 90 deg F (32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.
3. Provide batch ticket for each batch discharged and used in work, indicating project identification name and number, date, mix type, mix time, quantity.

PART 3 - EXECUTION

3.1 GENERAL

A. Coordinate the installation of joint materials and vapor retarders with placement of forms and reinforcing steel.

3.2 FORMS

A. General: Design, erect, support, brace, and maintain formwork to support vertical and lateral, static and dynamic loads that might be applied until concrete structure can support such loads. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation, and position. Maintain formwork construction tolerances complying with ACI 347.

B. Construct forms to sizes, shapes, lines, and dimensions shown and to obtain accurate alignment, location, grades, level, and plumb work in finished structures. Provide for openings, sinkages, keyways, recesses, screeds, bulkheads, anchorages and inserts, and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide backup at joints to prevent leakage of cement paste.

C. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces.

D. Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

E. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses, and chases from trades providing such items. Accurately place and securely support items built into forms.

F. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, or other debris just before concrete is placed. Retighten forms and bracing before concrete placement as required to prevent mortar leaks and maintain proper alignment.

3.3 VAPOR BARRIER INSTALLATION

A. General: Following leveling and tamping of granular base for slabs on grade, place vapor barrier sheeting with longest dimension parallel with direction of pour.

B. Lap joints 6 inches and seal vapor barrier joints with manufacturers' recommended mastic and pressure-sensitive tape.

C. After placement of vapor barrier, cover with sand cushion and compact to depth as shown on drawings.

3.4 PLACING REINFORCEMENT

A. General: Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports and as herein specified.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that reduce or destroy bond with concrete.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, required. Avoiding cutting or puncturing vapor barrier during reinforcement placement and concreting operations.

D. Place reinforcement to obtain at least minimum coverage for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

E. Welding of bar reinforcement will not be permitted unless otherwise indicated on the drawings.

F. Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

3.5 JOINTS

A. Construction Joints: Locate and install construction joints as indicated or, if not indicated, locate so as not to impair strength and appearance of the structure, as acceptable to the Engineer.

B. Provide keyways at least 1-1/2 inches deep in construction joints in walls and slabs and between walls and footings. Accepted bulkheads designed for this purpose may be used for slabs.

C. Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints except as otherwise indicated.

D. Use bonding agent on existing concrete surfaces that will be joined with fresh concrete.

E. Waterstops: Provide waterstops in all construction joints and/or as required. Install waterstops to form continuous diaphragm in each joint. Make provisions to support and protect exposed waterstops during progress of work. Field-fabricate joints in waterstops in accordance with manufacturer's printed instructions.

F. Isolation Joints in Slabs-on-Ground: Construct isolation joints in slabs-on-ground at points of contact between slabs-on-ground and vertical surfaces, such as column pedestals, foundation walls, grade beams, and elsewhere as indicated.

G. Contraction (Control) Joints in Slabs-on-Ground: Construct contraction joints in slabs-on-ground to form panels of patterns as shown. Use saw cuts 1/8-inch-wide by 1/4 slab depth or inserts 1/4-inch-wide by 1/4 of slab depth, unless otherwise indicated.
   1. Form contraction joints by inserting premolded plastic, hardboard, or fiberboard strip into fresh concrete until top surface of strip is flush with slab surface. Tool slab edges round on each side of insert. After concrete has cured, remove inserts and clean groove of loose debris.
   2. Contraction joints in unexposed floor slabs may be formed by saw cuts as soon as possible after slab finishing as may be safely done without dislodging aggregate.
   5. Joint sealant material is specified in Division 7 Sections of these specifications.

3.6 INSTALLATION OF EMBEDDED ITEMS

A. General: Set and build into work anchorage devices and other embedded items required for other work that is attached to or supported by cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of items to be attached thereto.

B. Forms for Slabs: Set edge forms, bulkheads, and intermediate screed strips for slabs to obtain required elevations and contours in finished surfaces. Provide and secure units to support screed strips using strike-off templates or compacting-type screeds.

3.7 CONCRETE PLACEMENT

A. Changes in the approved mix design including the addition of mix water at the job site is prohibited.

B. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work.

C. General: Comply with ACI 304, "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete," and as herein specified.

D. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.
   1. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
   2. Bring slab surfaces to correct level with straightedge and strike off. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
   3. Maintain reinforcing in proper position during concrete placement.

E. Cold-Weather Placing: Comply with provisions of ACI 306 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

F. When air temperature has fallen to or is expected to fall below 40 deg F (4 deg C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F (10 deg C) and not more than 80 deg F (27 deg C) at point of placement.
   1. Do not use-frozen materials or materials containing ice or snow. Do not place concrete on frozen sub grade or on sub grade containing frozen materials.

2. Do not use calcium chloride, salt, and other materials containing antifreeze agents or chemical accelerators.

G. Hot-Weather Placing: When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.
1. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 deg F (32 deg C). Mixing water may be chilled or chopped ice may be used to control temperature provided water equivalent of ice is calculated to total amount of mixing water. Use of liquid nitrogen to cool concrete is Contractor's option.
2. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.
3. Fog spray forms, reinforcing steel, and sub grade just before concrete is placed.

3.8 FINISH ING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
1. Apply to concrete surfaces to receive a rubbed finish, and to be covered with a coating or covering material applied directly to concrete.

C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where exposed to public view.

D. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.

E. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.9 SLAB FINISHES

A. Trowel Finish: After floating, begin first trowel finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and with surface leveled to tolerances of Ff 20 - Fl 17. Grind smooth surface defects that would telegraph through applied floor covering system.

B. Trowel and Fine Broom Finish: Where ceramic or quarry tile is to be installed with thin-set mortar, apply trowel finish as specified, then immediately follow with slightly scarifying surface by fine brooming.

C. Non-Slip Broom Finish: Apply to exterior concrete ramps, platforms and steps, and elsewhere as indicated. Immediately after float finishing, slightly roughen concrete surface by brooming with fiber bristle broom perpendicular to the main traffic route. Coordinate required final finish with Architect before application.

3.10 CONCRETE CURING AND PROTECTION

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather, protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply in accordance with manufacturer's instructions after screeding and bull floating, but before power floating and troweling.

B. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting; keep continuously moist for not less than 7 days.

C. Curing Methods: Perform curing of concrete by moisture retaining cover. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

3.11 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place, and cure concrete as herein specified, to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations, as shown on drawings. Set anchor bolts for machines and equipment to template at correct elevations, complying with certified diagrams or templates of manufacturer furnishing machines and equipment.

D. Reinforced Masonry: Provide concrete grout for reinforced masonry lintels and bond beams where indicated on drawings and as scheduled. Maintain accurate location of reinforcing steel during concrete placement.

3.12 CONCRETE SURFACE REPAIRS

A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to Engineer.
   1. Cut out honeycomb, rock pockets, voids over 1/4 inch in any dimension, and holes left by tie rods and bolts, down to solid concrete but in no case to a depth of less than 1 inch. Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush-coat the area to be patched with specified bonding agent. Place patching mortar before bonding compound has dried.
   2. For exposed-to-view surfaces, blend white portland cement and standard portland cement so that, when dry, patching mortar will match color surrounding. Provide test areas at inconspicuous location to verify mixture and

color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.

B. Repair of Slab Surfaces: Test surfaces for smoothness and verify surface plane to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope and smoothness by using a template having required slope.
   1. Repair finished surfaces that contain defects that affect durability of concrete. Surface defects, as such, include crazing and cracks in excess of 0.01-inch-wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, spalling, popouts, honeycomb, rock pockets, and other objectionable conditions.
   2. Correct high areas in unformed surfaces by grinding after concrete has cured at least 14 days.
   3. Correct low areas in unformed surfaces during or immediately after completion of surface finishing operations by cutting out low areas and replacing with patching compound. Finish repaired areas to blend into adjacent concrete. Proprietary underlayment compounds may be used when acceptable to Engineer.
   4. Repair defective areas, except random cracks and single holes not exceeding 1 inch in diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

D. Perform structural repairs with prior approval of Engineer for method and procedure, using specified epoxy adhesive and mortar.

3.13 QUALITY CONTROL TESTING DURING CONSTRUCTION

A. Concrete testing services will be performed and paid for by the Owner. Testing services shall be performed by an independent testing agency approved by the Engineer. The testing agency shall be responsible for making, handling and curing the specimens in addition to testing the concrete.

B. Sampling and testing for quality control during placement of concrete may include the following, as directed by Engineer, for Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.
   1. Slump: ASTM C 143; one test at point of discharge for each truck delivered to the job site
   2. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231 pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.
   3. Concrete Temperature: Test hourly when air temperature is 40 deg F (4 deg C) and below, when 80 deg F (27 deg C) and above, and each time a set of compression test specimens is made.
   4. Compression Test Specimen: ASTM C 31; one set of 4 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cure test specimens are required.
   5. Compressive Strength Tests: ASTM C 39; one set for each 50 cubic yards (or each day's pour if less than 50 cubic yards placed during a day) of each type and strength of concrete; two specimens tested at 7 days and two specimens tested at 28 days.

C. Test results will be reported in writing to Architect, Structural Engineer, Ready-Mix Producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day tests and 28-day tests.

D. If additional testing, curing, or other measures are required to confirm or verify the strength of any concrete in question, cost shall be paid by the contractor.

END OF SECTION 03300

SECTION 04100 - MORTAR

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of Contract, including General Conditions, Amendments to General Conditions, and Supplementary Conditions and Sections in Division 1 of the Specifications apply to work of this Section.

1.2 DESCRIPTION

A. Work included in this Section:

1. The work required under this specification consists of all Mortar and Grout for the masonry work under various sections of the specifications.

1.3 QUALITY ASSURANCE

A. A representative sample of the sand shall be obtained for each job and tested as specified herein below by an independent testing laboratory selected by the Architect, and paid for by the Owner.

1.4 DELIVERY AND STORAGE OF MATERIALS

A. Portland Cement, lime, and/or pre-packaged mortar cement mixes shall be delivered to the site and stored in unbroken bags or other approved containers. These materials shall be stored in dry, weather tight sheds or enclosures with elevated floors, which will prevent the inclusion of foreign materials and damage by water or dampness. Masonry sand shall be delivered and stored in a manner to prevent inclusion of foreign materials. Concrete masonry which is chipped, cracked, broken, or marred in other manner shall not be used where exposed to view.

1.5 ENVIRONMENTAL CONDITIONS

A. Hot Weather Installation: The following precautions shall be taken if masonry is erected when the ambient air temperature is more than 37 degrees C (99 degrees F) in the shade and the relative humidity is less than 50 percent.

1. All masonry materials shall be shaded from direct sunlight; mortar beds shall be spread no more than 1.2 m (4 feet) ahead of masonry; masonry units shall be set within one minute of spreading mortar; and after erection, masonry shall be protected from direct exposure to wind and sun for 48 hours.

B. Cold Weather Installation: Before erecting masonry when ambient temperature or mean daily air temperature falls below 4 degrees C, (40 degrees F,) a written statement of proposed cold weather construction procedures shall be submitted for approval. The following precautions shall be taken during all cold weather erection.

1. Preparation: Ice or snow formed on the masonry bed shall be thawed by the application of heat. Heat shall be applied carefully until the top surface of the masonry is dry to the touch. Sections of masonry deemed frozen and damaged shall be removed before continuing construction of those sections.

2. Air Temperature 4 to 0 degrees C (40 to 32 Degrees F): Sand or mixing water shall be heated to produce mortar temperatures between 4 degrees C and 49 degrees C. (40 degrees F and 120 degrees F).

3. Air Temperature 0 to minus 4 degrees C (32 to 25 Degrees F): Sand and mixing water shall be heated to produce mortar temperatures between 4 degrees C and 49 degrees C. (40 degrees F and 120 degrees F.) Temperature of mortar on boards shall be maintained above freezing.

4. Air Temperature minus 4 to minus 7 degrees C (25 to 20 Degrees F): Sand and mixing water shall be heated to provide mortar temperatures between 4 degrees C and 49 degrees C. (40 degrees F and 120 degrees F.) Temperature of mortar on boards shall be maintained above freezing. Sources of heat shall be used on both sides of walls under construction. Windbreaks shall be employed when wind is in excess of 24 km/hour. (15 mph.)

5. Air Temperature minus 7 degrees C (20 Degrees F) and Below: Sand and mixing water shall be heated to provide mortar temperatures between 4 degrees C and 49 degrees C. (40 degrees F and 120 degrees F.) Enclosure and auxiliary heat shall be provided to maintain air temperature above 0 degrees C. (32 degrees F.) Temperature of units when laid shall not be less than minus 7 degrees C. (20 degrees F.)

6. Completed Masonry and Masonry Not Being Worked On:

   a. Mean daily air temperature 4 degrees C to 0 degrees C. (40 degrees F to 32 degrees F.) Masonry shall be protected from rain or snow for 24 hours by covering with weather-resistive membrane.

   b. Mean daily air temperature 0 degrees C to minus 4 degrees C. (32 degrees F to 25 degrees F.) Masonry shall be completely covered with weather-resistive membrane for 24 hours.

   c. Mean daily air temperature minus 4 degrees C to minus 7 degrees C. (25 degrees F to 20 degrees F.) Masonry shall be completely covered with insulating blankets or equally protected for 24 hours.

   d. Mean daily temperature minus 7 degrees C (20 degrees F) and below. Masonry temperature shall be maintained above 0 degrees C (32 degrees F) for 24 hours by enclosure and supplementary heat, by electric heating blankets, infrared heat lamps, or other approved methods.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cement shall be Portland Cement, Type I or II, meeting Standard Specifications for Portland Cement (ASTM C-150).

B. Sand shall meet the requirements of Standard Specifications for Aggregate for Masonry Mortar (ASTM C-144-81), with the gradation to satisfy paragraph 3, Grading, and with the omission of subparagraph 3.4.

C. Hydrated Lime shall meet the requirements of the Standard Specifications for Hydrated Lime for Masonry Purposes (ASTM C-207), Type S.

D. Hydraulic Hydrated Lime shall meet the requirements of the Standard Specifications for Hydraulic Hydrated Lime for Structural Purposed (ASTM C-141).

E. Water shall be potable.

F. Air-entraining admixtures may be utilized and shall conform to ASTM C-260, as shall admixture workability.

G. Provide water resistant admixture.

2.2 PRE-PACKAGED MORTAR MIXES

A. Pre-packaged mortar cements may be used with prior approval of the Architect. To be considered, the mortar cement manufacturer shall submit a request to the Architect in sufficient time for the proposed material to be tested and evaluated prior to its approval for a specific project. The mortar cement shall be in accordance with ASTM C-91-83, and meet the following minimum requirements:

1. Type S Mortar Cement. The masonry mortar made from the mortar cement shall have a compressive strength of 1800 psi minimum at 28 days when tested in accordance with ASTM C-270, with maximum air volume of 16%.
2. The mortar cement shall contain Portland Cement, hydrated lime, plasticizing admixtures, and/or hydraulic hydrated lime. Mortar cement mixes that contain other materials, including ground limestone, ground slag or other cementitious or non-cementitious materials, are not acceptable.

B. Instructions for mixing the mortar mix shall be published and accompany all shipments. The instructions shall be volumetric measurements, and shall be developed to show proper proportions of sand to one (1) bag of the prepackaged mortar cement with volume of water to produce a flow of the proper consistency.

C. Freeze-thaw Resistance: The mortar cement shall comply with the following requirements when subjected to 50 cycles of the freeze-thaw test:

1. Loss of compressive strength: 35% maximum
2. Loss in dry weight: 1.0% maximum

D. The test specimen shall be made in accordance with ASTM C-91, Paragraph 18, 19 and 20 and be tested in accordance with ASTM C-01, Paragraphs 22.1 and 22.2.1 and ASTM C-67, Paragraph 8.1, 8.3 and 8.4.

1. Colored mortar will be required for all split face concrete masonry. Colored mortar shall be field batched mortar with coloring agent added in field. Tests will be required to insure the coloring agent does not affect properties of the mortar. No pre-packaged mortar with coloring agents is acceptable. Colored mortar is to match spilt face CMU.

2.3 ON-THE-JOB-MORTAR CEMENT

A. Type S. mortar shall have a compressive strength of 1800 psi minimum at 28 days. The mortar shall be proportioned within the following volumetric limits:

1. 1 part Portland Cement
2. 1/2 part Hydrated Lime
3. Masonry sand measured in a damp loose condition is to be not less than 2-1/4 and not more than 3 times the sum of the volumes of cement plus lime used.
4. Plasticizer per instructions of the manufacturer, the quantity of which is not to exceed 2% by volume of the cement and lime combination.

2.4 MEASUREMENT AND MIXING

A. The method of measuring material shall be by volume and shall be such that the specified proportions of the mortar materials can be controlled and accurately maintained. A measuring device to make consistent volume measurements shall be used throughout the project. Measurement of sand by shovel will not be permitted.

B. Mortar Mixer shall be paddle-type mechanical mixer. It shall be of such design and size to accommodate the mix without overloading, and be adequately powered to vigorously mix the ingredients.

C. The mortar mixer shall be charged in this order: add approximately one-half the water required, one-half the sand, the cement and lime (or prepackaged mortar cement), the remaining amount of sand, and then sufficient water to bring the mix to desired consistency. Mortar shall be mixed for a minimum of five minutes after all materials have been charged into the mixer with all batches being mixed to the same consistency.

D. Mortars that have stiffened because of evaporation of water from the mortar may be retempered by adding water as frequently as needed to restore the required consistency. Mortars shall be used and placed in their final position within 2 hours after mixing. When the temperature is over 80 degrees F., the mortar shall be used within 1-1/2 hours of mixing. Mortar not used within these time periods shall be discarded.

2.5 COLORED MORTAR

A. Mortar color to be selected by owner. Contractor to prepare samples for approval.

END OF SECTION 04100

SECTION 04150 - MASONRY ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General Conditions, Amendments to General Conditions, and Supplementary Conditions and Sections in Division 1 of the Specifications apply to work of this section.

1.2 DESCRIPTION

A. Work Included in this Section:
   1. Metal joint-reinforcement and anchors as specified herein.
B. Related Work Specified Elsewhere:
   1. Mortar (Section 04100)
   2. Concrete Unit Masonry (Section 04220)

1.3 SUBMITTALS

A. Samples: Submit samples of the following:
   1. Joint Reinforcement:
      a. Submit one piece of joint-reinforcement for wall intersections.

1.4 DELIVERY, STORAGE AND HANDLING

A. Deliver materials for work of this Section in Manufacturer's original packaging and protection. Labels shall be intact and legible.
B. Store materials under cover, and off the ground to protect from wetting, dirt and physical damage.
C. For joint-reinforcement, anchors and ties, remove any loose rust, scale, dirt and other coatings that would reduce the bond to mortar. Remove by wire brushing prior to installation.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Masonry Joint Reinforcement:
   1. Types specified herein are as manufactured by AA Wire Products Co., Chicago, Illinois. Equivalent reinforcement will be acceptable as manufactured by Dayton Sur-Grip and Shore Co.; Conover Steel and Wire Co., Inc.; Dur-O-Wal, Inc., or approved equal.
   2. Reinforcement for concrete-unit-masonry walls and partitions of single thickness of masonry units shall be Blok-Lok (AS500), Extra Heavy, hot-dipped galvanized after fabrication.
   3. Width of reinforcement shall be 2" less than the nominal wall thickness.
   4. Provide prefabricated "Tees" at all abutting walls.

PART 3 - EXECUTION

3.1 ACCESSORY INSTALLATION

A. Installation of masonry accessories shall be as specified in Section of the Project Manual on unit masonry.

END OF SECTION 04150

SECTION 04220 - CONCRETE UNIT MASONRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General Conditions, Amendments to General Conditions, and Supplementary Conditions and Sections in Division 1 of the Specifications apply to work of this section.

1.2 DESCRIPTION

A. The work required under this Section consists of all concrete masonry.

B. Related Work

1. Mortar is specified under Section 04100.
2. Masonry accessories are specified under Section 04150.
3. Insulation is specified in Division 7.

1.3 SUBMITTALS

A. The Contractor shall submit a certificate signed by the concrete unit masonry manufacturer of compliance with the ASTM C 90 and Non Load Bearing C 129.

B. When requested by the Architect, the Contractor shall submit to the Architect for approval duplicate samples of each and every kind and/or size of structural concrete block the proposes to use. Each sample shall bear a label indicating the size, kind and quality of the product and the name of the manufacturer.

1.4 QUALITY ASSURANCE

A. The manufacturer of the structural concrete block shall be subject to the approval of the Architect.

B. Certificates:

1. Prior to delivery of the concrete masonry units to Project Site, submit certificates from manufacturer of concrete masonry units stating compliance with requirements of the Contract Documents. Certificate shall be on firm's letterhead, signed by an officer of the company.

2. At the completion of the job, the Contractor shall furnish a certificate acceptable to the North Carolina Fire Insurance Rating Bureau, certifying that these units meet their requirements.

1.5 ENVIRONMENTAL CONDITIONS

A. Cold Weather and Hot Weather Installations: Comply with requirements specified in Section 04100, "Mortar".

PART 2 - PRODUCTS

2.1 CONCRETE BLOCK

A. Units for "Regular Unit Masonry" shall be 2-cell and designed for stacked cells to allow for filling of cores where required on the drawings, except where other shapes, or solid masonry units are

called for. See Drawings for size and specific cell arrangement where such is required.
1. ASTM C-90

B. Deliver concrete-masonry-units on pallets. Handle at Project Site on flat-bed wheelbarrows or pallets and forklift.

C. See drawings for Split face CMU locations.

2.2 WALL REINFORCEMENT

A. All exterior walls, foundations and back-up walls shall be reinforced with Dur-O-Wal, American or Wal-Lock truss-design deformed reinforcement hot-dip galvanized after fabrication with zinc coating ASTM A 116, Class 3. It shall be installed in every other course of block. Use corner and tee sections around corners and at intersections with other walls.
B. Reinforcing Bars: ASTM A 615, Grade 60 deformed.

2.3 EMBEDDED ITEMS

A. The Contractor shall furnish and install all bolts, anchors, etc., which are to be built into masonry. Coordinate all conduits, pipes etc. with other trades.

PART 3 - EXECUTION

3.1 LAYING

A. All masonry shall be laid true to dimensions, plumb, square, in bond and properly anchored. All courses shall be level with joints of uniform width. No joints shall exceed the size specified. Faces of walls shall be laid to a line. All masonry shall be laid uniformly one scaffold-height at a time except when otherwise specially approved. Whether masonry is laid from an outside or an inside scaffold rests with the Contractor, but the governing requirement shall be a first class job of masonry in every respect.

B. Work required to be built into the masonry including loose lintels, angles, special metal work, flashings, anchors, wall plugs, grounds blocking, and other accessories shall be built in as the masonry work progresses. Unless otherwise shown all spaces about built-in work shall be completely and solidly filled in with masonry. Bucks, frames, and similar built-in items shall be maintained in their proper positions, and no braces or stays shall be removed from same until they are securely supported and fastened by the masonry.

C. Carefully cover all walls each night during inclement weather or during delays in the work to prevent water from rains getting into the masonry. When starting work at a new level, the existing masonry shall be cleaned of all loose mortar, or other materials, and shall be thoroughly welded.

D. Pickets, chases, recesses and other breaks in masonry shall be constructed where and as shown on the drawings or in accordance with instructions given prior to the laying of the masonry.

E. Cutting of Units: Where cuffing is necessary, make all cuts with a motor driven masonry saw. Units with chips or irregular cuts will not be accepted.

F. Coursing: Masonry work is laid out on a nominal 3/8" wide joint for concrete-unit-masonry work.

G. Where masonry units are disturbed, or must be moved after the mortar has begun to lose its moisture, the masonry unit and all adjacent mortar shall be removed and reset completely.

3.2 EXPANSION MATERIAL

A. Install as masonry work proceeds, and as shown on drawings. Joints are to be kept clean and free of all mortar as work progresses.

3.3 BUILT-IN WORK

A. Consult other trades in advance and make provisions for installation of their work in order to avoid cutting and patching. Build in work specified under other sections of the specifications as the work progresses.

B. Set steel lintels in beds of mortar.

C. Grout heads and jambs of hollow metal frames fully. Observe requirements of UL for grouting frames in Fire-Rated opening assemblies.

3.4 BOND AND JOINTS

A. All blocks, unless otherwise shown on the Drawings or herein excepted, shall be laid in running bond with all intersections of walls bonded every second course or keyed every course with galvanized corrugated steel wall ties. Blocks shall be cut accurately to fit around all pipe, ducts, openings, etc., and all voids slushed full. Unless otherwise shown or directed, all blocks shall be laid with the cells vertical. All walls and webs of blocks shall be carefully buttered, full-joint, with mortar. All solid blocks shall be laid in full beds of mortar. All blocks shall be laid with 3/8" bed and head joints. Except where plaster occurs, as shown on details and in Finish Schedule masonry block walls shall have concave mortar joints. Where plaster is to be applied, mortar joints shall not be tooled, but shall be flush with face of block. Wherever concentrated loads occur, all cells of blocks shall be carefully and solidly filled with concrete or mortar. Units shall be set tightly against the inside of bucks and all voids slushed full.

3.5 DISTURBED UNITS

A. Where concrete masonry units are disturbed or must be moved after the mortar has begun to lose its moisture, the masonry units and all adjacent mortar shall be removed and reset completely.

3.6 TOOLING

A. Where joints are to be tooled they shall be tooled to a uniform concave, head joints first and the bed joints. All joints shall be tooled at approximately the same degree of moisture content and firmness to achieve a uniform color and texture.

3.7 CONSTRUCTION TOLERANCES

A. Variations from Plumb: For lines and surfaces of columns, walls and arises do not exceed 1/4" in 10', 3/8" in a story height of 20' maximum, nor 1/2" in 40' or more. Except for external corners, expansion joints and other conspicuous lines, do not exceed 1/4" in any story of 20' maximum, nor 1/2" in 40' or more.

B. Variations from Level: For grades shown for exposed lintels, sills, parapets, horizontal grooves and other conspicuous lines do not exceed 1/4" in any bay of 20' maximum, nor 3/4" in 40' or more.

3.8 POINTING OF MASONRY

A. At the completion of the masonry work, all holes in the exposed masonry shall be pointed. Defective joints shall be cut out and tuck-pointed solidly with mortar. Pointing and tuck-pointing shall be done with a pre-hydrated mortar. The mortar cement shall be controlled so that after curing of the mortar no difference in texture or color exists with that of adjacent masonry.

3.9 COLD WEATHER

A. No laying of masonry units shall be performed unless the temperature of the surrounding air is 40 degrees F and rising. The use of "anti-freeze" or accelerating admixtures is not permitted. Provide temporary protection of masonry to ensure a minimum 48 hours curing at a minimum 40 degrees F.

3.10 MASONRY CLEANING

A. While laying the concrete masonry, good workmanship and job housekeeping practices shall be used so as to minimize the need for cleaning the concrete masonry. Protect the base of the wall from mud splashes and mortar droppings, protect the wall by setting scaffolding boards so that mortar is not deflected on the wall, and at end of each day set the scaffolding boards so they do not deflect rainfall onto newly laid masonry. The concrete masonry technique shall be such that mortar does not run down the face of the wall, or smear the mortar onto the brick face. After the joints are tooled, cut off mortar tailings with the trowel and brush excess mortar burrs and dust from the face of concrete masonry. Do not bag or sack the wall, but use a bricklayer's brush made with medium soft hair.

B. Remove all large mortar particles with a hardwood scraper.

C. If, after using the above outlined techniques, additional cleaning of the walls is found necessary, allow the walls to cure one month prior to initiating further cleaning processes.

D. Saturate the wall with clean water. The wall shall be thoroughly saturated prior to and at the time the cleaning solution is applied.

E. Clean the wall only with an approved cleaning solution applied with a brush, starting at the top of the wall. Approved cleaning solutions are: Sure-Klean 600, Vanatrol, Superior 800, or approved equal. Approved cleaners shall be composed primarily of detergents, wetting agents, buffering agents, and a maximum of 10% muriatic acid. The use of any of the above cleaning agents shall first be approved in writing by the manufacturer of the concrete masonry being cleaned, and by the Architect. The concentration, method of application of the cleaning solution, and method of scraping shall be as outlined on the container by the manufacturer.

F. High pressure water and sandblasting shall not be used for cleaning except with the recommendations of the concrete masonry manufacturer, and the written approval of the Architect.

G. Immediately after cleaning a small area, the wall shall be rinsed thoroughly with quantities of water.

H. Protect adjacent surfaces and materials during brick cleaning operations.

1. After the walls are cleaned, take necessary precautions to ensure that other contractors and subcontractors do not damage or soil the walls. Mud protection around the base of walls shall be left in place until the final grading work is done.

END OF SECTION 04220

SECTION 06100 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplemental Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes framing with dimension lumber and sheathing.
B. Related Sections include 06192, Metal Plate Connected Wood Trusses.

1.3 SUBMITTALS

A. No submittals are required for miscellaneous framing and sheathing products that meet the requirements of this Section.

1.4 QUALITY ASSURANCE

A. Grading and Marking: Materials shall bear the grade mark, stamp or other identifying marks indicating grades of material and rules or standards under which produced. Such identifying marks on material shall be in accordance with the rule or standard under which the material is produced, including requirements for qualifications and authority of the inspection organization, usage of authorized identification, and information included in the identification. The inspection agency for lumber shall be certified by the Board of Review, American Lumber Standards Committee, to grade species used. Except for structural laminated members, plywood, and lumber; bundle marking or certificates will be permitted in lieu of marking each individual piece.
B. Sizes: Lumber sizes shall conform to Prod. Std. PS 20, and unless otherwise specified, lumber shall be surfaced on four sides. Sizes for materials other than lumber shall conform to requirements of the rules or standards under which produced. Size references, unless otherwise specified are nominal sizes, and actual sizes shall be within manufacturing tolerances allowed by the standard under which the product is produced.
C. Moisture Content: At the time lumber and other materials are delivered and when installed in the work their moisture content shall be as follows:
    1. Treated and Untreated Lumber under 2 inches nominal thickness; 19 percent maximum.
    2. Treated and Untreated Lumber over 2 inches nominal thickness; 19 percent maximum.
    3. Materials Other Than Lumber: In accordance with standard under which product is produced.
D. Species: All lumber shall be Douglas Fir, Southern Pine, or Hem Fir, Grade No. 2, unless otherwise indicated on plans.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Materials shall be delivered to the site in undamaged condition, stored in fully covered, well ventilated areas, and protected from extreme changes in temperature and humidity.

PART 2 - PRODUCTS

2.1 MATERIALS: Materials shall conform to the following requirements:

A. Accessories and Nails:
   1. Anchor Bolts: ASTM A 307, size as indicated, complete with nuts and washers.
   2. Expansion Shields: Type and size best suited for intended use.
   3. Bolts; Lag, Toggle, and Miscellaneous Bolts and Screws: Type, size, and finish best suited for the intended use.
   4. Framing Accessories: Provide galvanized steel framing anchors of structural capacity, type and size indicated.
   5. Nails and Staples: Size and type best suited for purpose, in accordance with Fed. Spec. FF-N-05 when applicable to type used. For sheathing and subflooring, length of nails shall be sufficient to extend one inch into supports. In general, 8d or larger nails shall be used for nailing through one inch thick lumber and for toe nailing two inch thick lumber; 16d or larger nails shall be used for nailing through two inch thick lumber.

B. Dimension Lumber: Size and grade indicated on plans.

C. General Use Plywood: Prod. Std. PS 1, grade and thickness as shown.

D. Moisture Barrier: Polyethylene sheeting, ASTM D 2103, 6 mil thick.

E. Preservative Treatment: Lumber shall be treated in accordance with AWPB LP-2, LP-3, or LP-4. Wood treated with oil borne preservatives shall be clean, free from surface oil, and properly seasoned for use in building construction. Wood treated with water borne preservatives shall be air dried or kiln dried to the moisture content specified for lumber and marked with the word "Dry." Creosote or coal tar solutions shall not be used. Exposed areas of treated wood that are cut or drilled after treatment shall receive a field treatment in accordance with AWPA M-4. Unless otherwise specified, all wood members exposed to weather or in contact with soil, water, masonry or concrete shall be pressure preservative treated.

PART3 - EXECUTION

3.1 INSTALLATION OF FRAMING AND MISCELLANEOUS WOOD MEMBERS

A. General: Members shall be closely fitted, accurately set to required lines and levels, and rigidly secured in place. Nailing shall be in accordance with the Recommended Nailing Schedule as contained in NFPA Manual for House Framing. Where detailed nailing requirements are not specified, nail size and nail spacing shall be sufficient to develop an adequate strength for the connection without splitting the members. Installation of timber connectors shall conform to applicable requirements of the NFPA National Design Specification for Wood Construction. Members shall be framed for passage of ducts and pipes and shall be cut, notched, or bored in accordance with applicable requirements of the NFPA Manual for Housing Framing. Joists shall be set with crown edge up. Leveling of joists, on masonry or concrete shall be with slate or steel; on wood or metal leveling shall be without shims.

B. Blocking: Blocking shall be provided as necessary for application of subflooring, wallboard, and other materials or building items, and to provide fire stopping. Blocking shall be cut to fit between framing members and rigidly nailed thereto.

C. Step Framing: Step framing members shall be well spiked together. Rough carriages shall be cut to exact shape required to receive finish tread and risers. Risers shall be of uniform height, and tread shall be of uniform width except as otherwise shown. Trimmers, blocking, and other framing necessary for support of finish tread, risers, newels, and railing shall be

provided.

D. General Use Plywood: Plywood shall be installed where indicated.

END OF SECTION 06100

SECTION 06192 – PREFABRICATED WOOD TRUSSES

PART 1 - GENERAL

1.1 SUMMARY

A. Structural Performance: Engineer, fabricate, and erect metal-plate-connected wood trusses to withstand design loads without exceeding ANSI/TP-1 deflection limits.

B. Related Documents
1. Division 0 – Bidding and General Conditions, Division 1 – General Requirements, all applicable provisions in the technical specification sections of Divisions 2 through 16 and applicable drawings apply to this section.

C. Section Includes:
1. Trusses fabricated from dimension lumber.
2. Plate connectors.
3. Engineering of trusses.
4. Erection of trusses.
5. Erection accessories and bracing.
6. Bridging.
7. Attachment to structure.

D. Engineering Responsibility: Engage a fabricator who uses a qualified professional engineer, registered in the state of North Carolina, to prepare calculations, shop drawings, and other structural data for metal-plate-connected wood trusses.

1.2 SUBMITTALS

A. In addition to Product Data, submit shop drawings detailing location, pitch, span, camber, configuration, and spacing for each type of truss required; lumber species, sizes, and stress grades; connector plate size, material, finish, design values, and orientation and location; and bearing details.

B. Shop Drawings and structural analysis data shall be signed and sealed by the qualified professional engineer responsible for their preparation.

1.3 QUALITY ASSURANCE

A. Fabricator's Qualifications: Engage a fabricator who participates in a recognized quality-assurance program that involves inspection by SPIB; Timber Products Inspection, Inc.; Truss Plate Institute (TPI); or other independent inspecting and testing agency acceptable to authorities having jurisdiction.

B. Comply with applicable requirements and recommendations of ANSI/TPI 1, "National Design Standard for Metal-Plate-Connected Wood Truss Construction", and TPI HIB "Commentary and Recommendations for Handling, Installing & Bracing Metal Plate Connected Wood Trusses".

C. Wood Structural Design Standard: Comply with applicable requirements of AFPA's "National Design Specifications for Wood Construction: and its "Supplement".

D. Single-Source Engineering Responsibility: Provide trusses engineered by one truss manufacturer to support superimposed dead and live loads indicated, with design approved and certified by a qualified professional engineer who is legally authorized to

practice in the jurisdiction where Project is located and who is experienced in the design of metal-plate-connected wood trusses.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Comply with pertinent provisions of Section 01640.

B. Handle and store Trusses with care and comply with manufacturer's written instructions and TPI recommendations to avoid damage and lateral bending.

PART 2 - PRODUCTS

2.1 TRUSSES

A. Provide dimension lumber as indicated on plans capable of supporting required loads without exceeding allowable design values according to AFPA's "National Design Specification for Wood Construction" and its "Supplement".

B. Assemble truss members in design configuration indicated using jigs or other means to ensure uniformity and accuracy of assembly with joints closely fitted to comply with tolerances of ANSI/TPI 1. Position members to produce design camber indicated.

C. Connect truss members by metal connector plates located and securely embedded simultaneously into both sides of wood members by air or hydraulic press.

2.2 METAL CONNECTOR PLATES

A. Fabricate connector plates from structural-quality steel sheet, zinc coated by hot-dip process complying with ASTM A 653, G60 (ASTM A 653M, Z180) coating designation; Grade 33 and not less than 0.0359 inch (0.91 mm) thick.

2.3 FASTENERS

A. Provide fasteners of size and type indicated that comply with requirements specified below for material and manufacturer. Where truss members are exposed to weather or to high relative humidity, provide fasteners with a hot-dip zinc coating per ASTM A 153 or of stainless steel, Type 304 or 316.
   a. Nails, Wire, Brads and Staples.
   b. Proven-Driven Fasteners: CABO NER-272.
   c. Wood Screws: ASME B18.6.1.
   d. Lag Bolts and Screws: ASME B18.2.1 (ASME B18.2.3.8M).
   e. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

2.4 METAL FRAMING ANCHORS

A. Metal Framing Anchors: Provide metal framing anchors with allowable design loads, as published by manufacturer, that meet or exceed those indicated, of the following metal and finish:

   a. Galvanized Steel Sheet: Hot-dip, zinc coated steel sheet complying ASTM A 653, G60 (ASTM A 653M, Z180) coating designation; structural, commercial, or lock-forming quality, as standard with manufacturer for type of anchor indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install and brace trusses according to recommendations of TPI. Space trusses as indicated, install plumb, square, and true to line; and securely fasten to supporting construction.

B. Anchor trusses securely at all bearing points using metal framing anchors and fasten according to metal framing anchor manufacturer's fastening schedules and written instructions.

C. Securely connect each truss ply required for forming built-up girder trusses. Anchor trusses to girder trusses as indicated.

D. Install and fasten permanent bracing during truss erection and before construction loads are applied. Anchor ends of permanent bracing where terminating at walls of beams.

E. Install wood trusses within installation tolerances of ANSI/TPI 1.

F. Do not alter, cut, or remove truss members.

G. Return wood trusses that are damaged or do not meet requirements to fabricator and replace with trusses that do meet requirements.

END OF SECTION 06192

SECTION 06400 - ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior architectural woodwork.

a. Cabinets
b. Cabinet Hardware
c. Countertops

1.2 REFERENCES

A. Architectural Woodwork Quality Standards; Architectural Woodwork Institute; 1994.

1.3 SUBMITTALS

A. Shop Drawings: Plans and elevations; details at a large scale; show location of each item, identify components used, and indicate method of attachment.

B. Factory Finishes:
1. Samples: 8- by 10-inch step samples, finished, for each finish and color, showing each coat required.

C. Plastic Laminate:
1. Product data.
2. Samples for selection: Approximately 2- by 3-inch pieces of manufacturer's full type, pattern, and color range.

D. Cabinet Hardware:
1. Product data.
2. Samples showing each finish on each item of hardware exposed to view.

E. Fabricator Qualifications: For information only.

1.4 QUALITY ASSURANCE

A. Quality of Materials and Workmanship: Provide woodwork that complies with requirements of "Architectural Woodwork Quality Standards," published by Architectural Woodwork Institute (AWI) (hereinafter referred to as "woodworking standard").

B. Quality of Factory Finishing: Provide factory finishes that comply with Section 01500, "Architectural Woodwork Quality Standards."

C. Where contract documents indicate requirements, which are less restrictive than the woodworking standard, comply with the minimum requirements of the woodworking standard.

D. Fabricator Qualifications:
1. A single firm shall fabricate all work of this section.

E. Installer Qualifications: Experienced in installing woodwork of similar quality.

1.5 DELIVERY, STORAGE AND HANDLING

A. Store materials for interior woodwork indoors in air-conditioned spaces maintained within design temperature and humidity range.

1.6 PROJECT CONDITIONS

A. Maintain final design temperature and humidity in areas where woodwork is installed.

B. Fit woodwork to actual construction. If it is not possible, or practical, to take field measurements before fabricating, provide adequate installation tolerances and scribe or trim to fit.

C. Coordinate installation of woodwork with other work to avoid damage.

PART 2 - PRODUCTS

2.1 WOOD MATERIALS

A. Lumber - General: Species and grade as specified in woodworking standard, unless otherwise indicated.

1. Comply with applicable requirements of AWI Section 100.
2. Moisture content at time of fabrication: Not greater than optimum moisture content as specified in woodworking standard.
3. Provide lumber dressed on all exposed faces, unless otherwise indicated.
4. Do not use twisted, warped, bowed, or otherwise defective lumber.
5. Sizes indicated are nominal, unless otherwise indicated.
6. Do not mark or color lumber, except where such marking will be concealed in finish work.

B. Trim, Molding and Finish Lumber:

1. Southern Pine, Ponderosa Pine, White Pine, Douglas Fir, or approved substitution, first grade of the species for natural finish and second grade of the species for paint finish.
2. Exposed edges of boards shall be eased.
3. Trim to receive opaque finish may be finger jointed.

C. Plywood: Types, grades, and cores as specified in the woodworking standard, except as otherwise specified in this section.

1. Comply with applicable requirements of AWI Section 200.
2. Face grade for plywood to receive laminates: Grade A, minimum.
3. Veneer for clear or stain finish: Birch veneer or as per drawings.

2.2 MISCELLANEOUS MATERIALS

A. High-Pressure Decorative Laminate (HPDL): NEMA LD 3. Grade GP-50 for countertops and splashes, and GP-28 for exposed vertical surfaces.

B. Wood Filler for Transparent Finish Woodwork: Match final finish color.

C. Fasteners: Style, size, material, and finish as required for the purpose.

D. Shelf Standards and Brackets: As specified for each shelving assembly type.

2.3 CABINET HARDWARE

A. Cabinet Hardware: Provide hardware and accessories indicated.

1. Finishes on exposed hardware: Comply with BHMA A156.18.
2. Match hardware for wood doors, unless otherwise indicated.
3. Concealed hardware: Manufacturer's standard finish, complying with applicable requirements of BHMA A156.9.
4. Hinges: Totally concealed style, self-closing, and opening 180 degrees.
5. Pulls: Standard wire style, 3-1/2-inch centers by 5/16-inch diameter, no escutcheons.
6. Catches: Heavy duty magnetic, 5-pound pull.
7. Drawer slides: Side-mounted, 75-pound capacity, full extension, with nylon ball-bearing rollers; positive pullout stop, self-closing, lift-out feature.
8. Locks: 5-pin tumbler, dead bolt.
9. Cabinet-mounted adjustable shelf supports: Recess-mounted, nickel-plated steel standards with horizontal slots, full height of cabinet, with adjustable shelf support clips.

Hardware Quantities:

10. Hinges: Two per door up to 36 inches high; three per door over 36 inches high.
11. Pulls: One per door, drawer.
12. Catches: One per door.
13. Drawer slides, side mounted: Two per drawer.
14. Locks: Where indicated.
15. Cabinet-mounted adjustable shelf supports: Four standards for each cabinet to receive adjustable shelving and four shelf support clips for each shelf.

2.4 FABRICATION

A. General:

1. Where applicable, comply with AWI QS, custom grade.
2. Provide sizes, materials, and designs as indicated and specified.
3. Joints shall be tight and constructed in a manner that will conceal shrinkage.
4. Miter trim and moldings at exterior angles and cope at interior angles at returns.
5. Material shall show no warp after installation.
6. Provide finish carpentry in the maximum practical lengths.
7. Provide blind nailing where practicable.
8. Fasten finish work with finish nails and set face nails for putty stopping.
9. Where practicable, shop assemble and finish items of built-up millwork.

B. Laminated Plastic Countertops:

1. Fabricate with lumber and plywood glued and screwed to form an integral unit.
2. Bond laminated plastic under pressure to exposed surfaces, using type of glue recommended by the plastic manufacturer.
3. The countertop unit shall be self-edged type covered with HPDL.

4. Provide nominal 1-inch by 4 inch applied back and end splashes with face and exposed edges faced with HPDL to match countertop.

C. Wall and Base Cabinets:

1. Fabricate cabinets in profiles and sizes indicated.
2. Provide each wall cabinet with 2 adjustable, full depth, shelves and each door type base cabinet (except sink base cabinet) with one fixed, half depth, shelf.
3. Provide cabinets of AWI Quality Custom Grade.
4. Unless otherwise indicated or approved, cabinets shall be constructed as follows:

a. Face Frame: 1-inch by 1-5/8-inch solid wood frame rails and stiles with glued mortise and tenon joints.
b. Concealed Surfaces: Sound and dry solid wood or plywood without defects affecting strength, utility, or stability.
c. Sides, Dividers, Tops, Bottoms, Shelves, and Stretchers: 1/2-inch thick plywood. Provide stretchers for top of base cabinet.
d. Back Panels: 1/4-inch thick plywood fastened to rear edge of end panels and to top and bottom rails.
e. Doors, Drawer Fronts, Fixed Panels, Toeboards, and Ends: Hardwood and 5/8 inch thick plywood.
f. Drawers: Fabricate with front, bottom, and back rabbeted in sides and secured with glue and mechanical fasteners as follows:

i. Sub-fronts, Sides and Backs: 1/2-inch thick plywood.
ii. Bottoms: 1/4-inch thick plywood set into rabbets in back, sides, and front.

g. Joinery:
i. Rabbet backs flush into end panels and secure with concealed mechanical fasteners.
ii. Connect bottoms and stretchers of base cabinets to ends and dividers with mechanical fasteners.
iii. Rabbet bottoms and backs into end panels.

h. Stain Finish:

i. Finish for Semi-Exposed Portions of Cabinets: Provide stain finish for semi-exposed surfaces of cabinets which includes surfaces behind doors and drawer fronts, such as shelves, interior faces of cabinet ends, back, tops and bottoms; inside face of drawer fronts, sides, backs and bottoms; and back face of doors. Also included is the underside of cabinets between 2 feet and 4 feet above floor.

i. High Pressure Decorative Laminate Finish (HPDL).

PART 3 - EXECUTION

3.1 PREPARATION

A. Verify that blocking and backings have been installed at appropriate locations for anchorage.

B. If shop-fabricated items are not fully fabricated, complete fabrication.

3.2 INSTALLATION - GENERAL

A. Do not begin installation of interior woodwork until potentially damaging construction operations are complete in the installation area.

B. Field Joinery: Comply with requirements of the woodworking standard for shop joinery.

C. Make joints neatly, with uniform appearance.

D. Install woodwork in correct location, plumb and level, without rack or warp.
1. Install with no variation in flushness of adjoining surfaces.

E. Shim as required with concealed shims.

F. Where cabinets abut other finished work, scribe and cut for accurate fit. Provide filler strips, scribe strips and moldings as indicated or required for a complete finished installation.

G. Touch-up shop finishes at field cuts.

H. Secure woodwork to structural support members or use anchors required.
1. Where anchorage method is not indicated, conceal all fasteners where possible.
2. Where exposed nailing is required or indicated, use finishing nails, countersink, and fill.

I. Repair damaged and defective woodwork to eliminate visual and functional defects; where repair is not possible, replace woodwork.

J. Touch up shop-applied finishes where damaged or soiled.

K. Cabinets:

1. Install so drawers operate smoothly.
2. Install all hardware not installed in shop.
3. Anchor tops securely.
4. Install tops level, within 1/8 inch in 8 feet.

L. Countertops:

1. Attach countertops securely to base units.
2. Conceal fastenings where practicable, fit the counter level, install in a rigid manner, and scribe to adjoining surfaces.
3. Provide counter sections in the longest lengths practicable; keep joints in tops to a minimum; and where joints are necessary, spline and glue joints and provide tight hairline joints drain up with concealed-type heavy pull-up bolts.
4. Glue joints with water-resistant glue and, make rigid with screws, bolts, or other approved fastenings.
5. Provide cutouts for fixtures and appliances; drill pilot holes at corners before making cutouts.
6. Smooth cut edges and coat with waterproof coating or adhesive.
7. Install back and end splashes with concealed fastening.
8. Provide sealant at joint where countertops and splashes meet adjacent finish surfaces.

M. Anchorage of Millwork: Anchor securely in place with appropriate fasteners, anchored into structural support members of wall construction.

3.3 ADJUSTING

A. Adjust and lubricate cabinet hardware for smooth operation.

3.4 CLEANING

A. Clean exposed and semi-exposed surfaces.

3.5 PROTECTION

A. Protect woodwork from damage and maintain design environmental conditions.

END OF SECTION 06400

SECTION 07210 - BUILDING INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. EXT. wall insulation.
2. Sound Insulation
3. Roof insulation.
4. See also drawings for other requirements.

1.2 DEFINITIONS

A. Thermal Resistance (R-value): The temperature difference in degrees F between the two surfaces of a material of given thickness, required to make 1 BTU of energy flow through 1 square foot of the material in 1 hour.

1.3 SUBMITTALS

A. Product Data: Submit for each product specified in this section.

1.4 DELIVERIES, STORAGE, AND HANDLING

A. Insulation: Minimize period between product delivery and actual installation. Protect against exposure to flame, sparks, or excessive heat. Minimize exposure to sunlight.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Provide manufacturer's standard preformed insulation units, sized for proper fit in indicated applications.

B. Exterior Wall Insulation:
1. Exterior Walls R-19 Batt (Faced).

C. Unfaced Sound Insulation Batts
1. Provide unfaced sound batt insulation in all interior partitions floor to ceiling, and toilet ceiling.

D. Roof Insulation:
1. To be R-34 close cell foam.

2.2 ACCESSORIES

A. Provide accessories as necessary to properly install specified products.
1. Adhesive: Insulation manufacturer’s recommended adhesive, complying with fire performance requirements.
1. Clips: Attachments as required to support the insulation as required.

PART 3- EXECUTION

3.1 EXAMINATION

A. Verify that conditions conform to requirements of contract documents.

B. Verify that related work to be performed within indicated spaces before installation of insulation has been completed.

C. Verify that substrates are in satisfactory condition to receive insulation.

D. Do not proceed until unsatisfactory conditions have been corrected. Commencement of installation indicates acceptance of conditions.

3.2 PREPARATION

A. Clean substrates of any substances, which might damage materials to be installed.

B. Remove harmful projections capable of puncturing vapor retarder.

3.3 INSTALLATION

A. Do not install insulation which is damaged, wet, soiled, or which has been covered at any time with ice or snow.

B. Comply with insulation manufacturer's recommendations and installation sequence. Provide permanent placement and support of insulation.

C. Install materials in a manner, which will maximize continuity of thermal or sound attenuation envelope, as applicable. Use a single layer of insulation wherever possible to achieve indicated requirements, unless otherwise indicated.

D. Insulation Blankets/Batts:
1. Unfaced Sound Attenuation Insulation, Stud Partitions: Friction-fit blanket insulation between partition framing members and extended from floor slab to ceiling. Stuff pieces of insulation into cracks between framing and into miscellaneous voids and cavity spaces (e.g., perimeter of wall openings).

3.4 PROTECTION

A. Protect installed materials from damage until permanent concealing work is completed.

B. Where concealing work is not performed immediately after installation work of this section is completed, erect suitable temporary coverings or enclosures to prevent damage.

END OF SECTION 07210

SECTION 07460 - SIDING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Fiber-cement siding.
   2. Fiber-cement Facia
   3. Fiber-cement Panel Siding
   4. Fiber-cement Trim
   5. Fiber-cement soffit.

B. Related Sections:

   1. Division 6 Section " Rough Carpentry" for wood furring, grounds, nailers, and blocking.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Samples for Verification: For each type, color, texture, and pattern required.
   1. 12-inch- (300-mm-) long-by-actual- width Sample of siding.
   2. 12-inch- (300-mm-) long-by-actual- width Sample of soffit.
   3. 12-inch- (300-mm-) long-by-actual-width Samples of trim and accessories.

C. Product Certificates: For each type of siding and soffit, from manufacturer.

D. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for fiber-cement siding.

E. Maintenance Data: For each type of siding and soffit and related accessories to include in maintenance manuals.

F. Warranty: Sample of special warranty.

1.4 QUALITY ASSURANCE

A. Labeling: Provide fiber-cement siding that is tested and labeled according to ASTM C 1186 by a qualified testing agency acceptable to authorities having jurisdiction.

B. Source Limitations: Obtain each type, color, texture, and pattern of siding, including related accessories, from single source from single manufacturer.

C. Preinstallation Conference: Conduct conference at Project site.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store materials in a dry, well-ventilated, weathertight place.

1.6 COORDINATION

A. Coordinate installation with flashings and other adjoining construction to ensure proper sequencing.

1.7 WARRANTY

A. Special Warranty: Standard form in which manufacturer agrees to repair or replace siding and soffit that fail(s) in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures including cracking, deforming, and fading.

b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

2. Warranty Period: Minimum 10 years from date of Substantial Completion. (Or standard manufacturing warranty if longer than 10 years)

1.8 EXTRA MATERIALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Furnish full lengths of siding and soffit including related accessories, in a quantity equal to 2 percent of amount installed.

PART 2 – PRODUCTS

2.1 FIBER-CEMENT SIDING

A. General: ASTM C 1186, Type A, Grade II, fiber-cement board, noncombustible when tested according to ASTM E 136; with a flame-spread index of 25 or less when tested according to ASTM E 84.

1. Basis-of-Design Product: Subject to compliance with requirements, provide comparable product by one of the following:

    a. James Hardie.
    b. Nichiha
    c. G.A.F.

2. Horizontal Lap Pattern: Boards 7-1/4 to 7-1/2 inches (184 to 190 mm) wide.

    a. Style: Plank Lap Siding
    b. Texture: Smooth
    c. Exposure: 6”

3. Panel Ceiling: 48” wide x 96” long x 5/8” thick panel siding

    a. Style: Smooth

4. Trim:
    a. Style: Smooth
    b. Size: provide sizes below where indicated on the drawings.

        1) 5 ½” wide by 1” thick at all unit HVAC louvers, window jambs and sills, along bottom of soffits, and as indicated on the drawings.

        2) 5 ½” wide by 1” thick at all building corners, horizontal trim, window and door lintel trim, gable trim, behind the urethane brackets, and as indicated on the drawings.

        3) 7 ¼” wide by 1” thick at facia, and as indicated on the drawings.

        4) 48” wide x 5/16” smooth face soffit

5. Factory Priming: Manufacturer' s standard acrylic primer.

2.3 ACCESSORIES

A. Siding Accessories, General: Provide starter strips, edge trim, outside and inside corner caps, and other items as recommended by siding manufacturer for building configuration.

1. Provide accessories matching color and texture of adjacent siding unless otherwise indicated.

B. Flashing: Provide aluminum flashing complying with Division 7 Section " Sheet Metal Flashing and Trim" at window and door heads and where indicated.

C. Fasteners:

1. For fastening fiber cement, use stainless- steel fasteners.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of siding and soffit and related accessories.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrates of projections and substances detrimental to application.

3.3 INSTALLATION

A. General: Comply with siding and soffit manufacturer' s written installation instructions applicable to products and applications indicated unless more stringent requirements apply.

1. Do not install damaged components.

B. Install fiber-cement siding and related accessories.

1. Install fasteners no more than 24 inches (600 mm) o.c.

C. Install joint sealants as specified in Division 7 Section " Joint Sealants" and to produce a weathertight installation.

3.4 ADJUSTING AND CLEANING

A. Remove damaged, improperly installed, or otherwise defective materials and replace with new materials complying with specified requirements.

B. Clean finished surfaces according to manufacturer' s written instructions and maintain in a clean condition during construction.

END OF SECTION 07460

SECTION 07600 - FLASHING AND SHEET METAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General Conditions, Amendments to General Conditions, and Supplementary Conditions and Sections in Division I of the Specifications apply to work of this section.

1.2 DESCRIPTION

A. Extent of each type of flashing and sheet metal work is indicated on drawings and by provisions of this Section.

B. Types of work specified in this Section include the following:

1. Metal counter flashing and base flashing.
2. Exposed metal trim.
3. Miscellaneous sheet metal accessories.

C. Related Work:

1. Section 07900 - Joint Sealants

1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 01620.

B. Product Data; Sheet Metal, Accessories: Submit manufacturer's product data, installation instructions and general recommendations for each specified sheet material and fabricated product.

C. Samples; Flashing, Sheet Metal, Accessories: Submit 8" square samples of specified sheet materials to be exposed as finished surfaces.

1. Submit 12" long, completely finished units of specified factory-fabricated products exposed as finished work.

D. Shop Drawings; Flashing, Sheet Metal, Accessories: Submit shop drawings showing layout, joining, profiles, and anchorages of fabricated work, including major counter flashing, trim/fascia units, etc.; layouts at 1/4" scale, detail at 3" scale.

1.4 QUALITY ASSURANCE

A. Comply with industry standards and recommendations of SMACNA Architectural Sheet Metal Manual except as specifically indicated otherwise.

1.5 JOB CONDITIONS

A. Coordinate work of this Section with interfacing and adjoining work for proper sequencing of each installation. Insure best possible weather resistance and durability of work and protection of materials and finishes.

B. Surfaces to which flashing and sheet metal are applied shall be even, smooth, sound, thoroughly clean and dry and free from all defects that might affect the application. Report any unsatisfactory surfaces to the General Contractor.

C. Do not proceed with installation of sheet metal work until curb and substrate construction, blocking, roofing, regrets, and other construction that will receive the work are completed. Proceeding with application of sheet metal work will be evidence of substrate acceptance by Installer.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Comply with pertinent provisions of Section 01620.

B. Materials furnished by this Section, which are to be built-in by other trades, shall be delivered to the Site in time to avoid delays in construction schedule.

PART 2 - PRODUCTS

2.1 FLASHING AND SHEET METAL MATERIALS

A. .032 Aluminum minimum (pre-fin)
B. Flashing exposed to view, color to be selected to match surrounding conditions.

2.2 MISCELLANEOUS MATERIALS AND ACCESSORIES

A. Fasteners: Same metal as flashing/sheet metal or other noncorrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened.

B. Bituminous Coating: SSPC-Paint 12, solvent type bituminous mastic, nominally free of sulfur, compounded for 15-mil dry film thickness per coat.

C. Mastic Sealant: Polyisobutylene; nonhardening nonskinning, noncorrosive metal seam cementing compound, recommended by metal manufacturer for exterior/interior non-moving joints including riveted joints.

D. Adhesives: Type recommended by flashing sheet manufacturer for waterproof weather-resistant seaming and adhesive application of flashing sheet.

E. Metal Accessories: Provide sheet metal clips, straps, anchoring devices and similar accessory units as required for installation work, matching or comparable with material being installed. They shall be noncorrosive, in sizes and gauges required for proper performance.

PART 3 - EXECUTION

3.1 INSTALLATION REQUIREMENTS

A. General: Except as otherwise indicated, comply with manufacturer’s installation instructions and recommendations, and with SMACNA "Architectural Sheet Metal Manual". Anchor units of work securely in place by methods indicated. Provide for thermal expansion of metal units. Conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints and seams, which will be permanently watertight and weatherproof.

B. Underlayment: Where aluminum is to be installed directly on cementitious or wood substrates, apply a coating or other permanent separation as recommended by manufacturer/fabricator to concealed aluminum surfaces.

3.2 CLEANING AND PROTECTION

A. Clean exposed metal surfaces, removing substances, which might cause corrosion of

metal or deterioration of finishes.

B. Protection: Installer shall advise Contractor of required procedures for surveillance and protection of flashing and sheet metal work during construction, to ensure that work be without damage or deterioration, other than natural weathering, at time of substantial completion.

END OF SECTION 07600

SECTION 07610 - SHEET METAL ROOFING

PART I – GENERAL

1.1 SUMMARY

A. Section Includes: Factory-formed sheet metal roofing, including flashings and trim.

B. Related Sections: Section(s) related to this section include:

1. Building Insulation: Division 7 Building Insulation Section.
2. Sealants: Division 7 Joint Sealants Section.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. ASTM A653/A653M Standard Specification for Steel Sheets, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

1.3 SYSTEM DESCRIPTION

A Performance Requirements: Provide sheet metal roofing, which has been manufactured, fabricated and installed to withstand structural and thermal movement, wind loading and weather exposure to maintain manufacturer's performance criteria without defects, damage, failure or infiltration of water.

1. Air infiltration: Maximum 0.06 cfm per lineal foot (0.33 m3/hr per linear meter) of seam at static pressure of 6.24 psf (3.0 kPa) when tested per ASTM E1680.
2. Water penetration:
   a) No uncontrolled water penetration through joints when tested in accordance with AAMA 501.2.
   b) No uncontrolled water penetration through the joints at a static pressure of 6.24 psf (3.0 kPa) when tested in accordance with ASTM E1646.

B Finish Performance Requirements:

1. Color change and fade resistance: No cracking, peeling, blistering or loss of adhesion when tested in accordance with ASTM G90; color change, after removal of surface deposits such as dirt or chalk, maximum 5 NBS units.
2. Humidity resistance: No blistering, peeling or loss of adhesion after 1000 hours testing, in accordance with ASTM D2247.

1.4 SUBMITTALS

A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.

B. Product Data: Submit product data, including manufacturer's SPEC-DATA[a] product sheet, for specified products.

C. Shop Drawings: Submit shop drawings showing layout, profiles and product components, including anchorage, accessories, finish colors and textures.

1. Indicate layout of roofing panels and roof panel sizes, including custom-fabricated roofing panels if indicated; indicate each item of trim and accessories.
2. Indicate in detailed drawings profile and gauge of interior and exterior sheets, and locations and types of fasteners; indicate locations, gauges, shapes and methods of

attachment of roofing panels, trim and accessory items.

3. Indicate products/materials required for construction activities of this section not supplied by manufacturer of products of this section.
4. Indicate layout of roofing panels and roof panel sizes, including custom-fabricated roofing panels if indicated; indicate each item of trim and accessories.
5. Indicate in detailed drawings profile and gauge of interior and exterior sheets, and locations and types of fasteners; indicate locations, gauges, shapes and methods of attachment of roofing panels, trim and accessory items.
6. Indicate products/materials required for construction activities of this section not supplied by manufacturer of products of this section.

D. Samples: Submit selection and verification samples for finishes, colors and textures.

1. Selection Samples: For each product requiring color selection, 2 sets of manufacturer's sample chips representing full range of colors and finishes available.
2. Verification Samples: For each color and finish selected, 2 chips indicating match to selected color and finish.

E. Quality Assurance Submittals: Submit the following:

1. Contractor Certificates: Contractor's certification that:
   a. Manufacturer of products of this section meets specified qualifications.
   b. Installer of products of this section meets specified qualifications.
2. Manufacturer Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and physical requirements.
3. Manufacturer's Instructions: Manufacturer's installation instructions.
4. Manufacturer's Field Reports: Manufacturer's field reports.

F. Closeout Submittals: Submit the following:

1. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals, Maintenance Data and Operation Data Section. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.
2. Warranty: Warranty documents specified herein.
3. Record Documents: Project record documents for installed materials in accordance with Division 1 Closeout Submittals (Project Record Documents) Section.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Installer experienced in performing work of this section who has specialized in the installation of work similar to that required for this project.

1. Certificate: When requested, submit certificate indicating qualification.

B. Sheet Metal Industry Standard: Comply with Sheet Metal and Air Conditioning Contractors National Association (SMACNA) Architectural Sheet Metal Manual.

C. Mock-Ups: Install at project site a job mock-up using acceptable products and manufacturer approved installation methods. Obtain Owner's and Architect's acceptance of finish color, texture and pattern and workmanship standard. Comply with Division 1 Quality Control (Mock-Up Requirements) Section.

1) Include eave, ridge, valley, gable and hip conditions.
2) Mock-Up Size: 8x8'.
3) Maintenance: Maintain mock-up during construction for workmanship comparison;

remove and legally dispose of mock-up when no longer required.

4) Incorporation: Mock-up may be incorporated into final construction upon Owner's approval.

D. Preinstallation Meetings: Conduct preinstallation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Division 1 Project Management and Coordination (Project Meetings) Section.

1.6 DELIVERY, STORAGE & HANDLING

A. General: Comply with Division 1 Product Requirements Sections.

1) Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact. Identify fabricated components with UL 90 label where appropriate.

C. Packing, Shipping, Handling and Unloading:

1. Bundle roofing panels in waterproof wrapping paper.

2) Package trim and accessories in waterproof wrapping paper.

D. Storage and Protection: Store materials protected from exposure to harmful conditions. Store material in dry, above ground location.

1. Stack prefinished material to prevent twisting, bending, abrasion, scratching and denting. Elevate one end of each skid to allow for moisture runoff.

2. Store products of this section in manufacturer's unopened packaging until installation of products.

3. Maintain dry, heated storage area for products of this section until installation of products.

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements, fabrication schedule with construction progress to avoid construction delays.

1.8 WARRANTY

A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.

B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under the Contract Documents.

1. Warranty Period: 2 years commencing on Date of Substantial Completion.

2. Warranty Period: 20 years that panels will be free from defects and panels will not rupture, fail structurally or perforate.

PART 2 – PRODUCTS

2.1 SHEET METAL ROOFING

A. Material:

1. Bengel Lock 1500

2. McElroy maxima
3. MBCI, Pac Clad or approved qual

B. Trim:
1. Manufacturer's standard sheet metal matching panel material and finish, break-formed to profiles indicated on drawings, and including, but not limited to:
a. Copings
b. Eave Trim
1. Color: Match Roofing

C. Clips and Fasteners: Supply items required for installation of panels in accordance with manufacturer's installation instructions and other indicated items; supply galvanized clips and fasteners.

2.2 MATERIALS

A. 24 guage, 1.5" standing seam, galvalume substrate, prefinished
1. Finish: Kynar/ Hylar/ PVE 500

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

A. Compliance: Comply with manufacturer's product data, recommendations and installation instructions for substrate verification, preparation requirements and installation.
1. Strippable Film: Remove manufacturer's protective film, if any, from surfaces of roofing panels.

3.2 EXAMINATION

A. Site Verification of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.
1. Verification of Conditions:
a. Panel support systems are ready for construction activities of this section and within specified tolerances.
b. Rough-in utilities are in correct locations.
2. Installer's Examination:
a. Have installer of this section examine conditions under which construction activities of this section are to be performed, then submit written notification if such conditions are unacceptable.
b. Transmit 2 copies of installer's report to Architect within 24 hours of receipt.
c. Delay construction activities of this section until unacceptable conditions have been corrected.
d. Beginning construction activities of this section indicates installer's acceptance of conditions.

3.3 PREPARATION

A. Coordination: Coordinate metal roofing with other work, drainage, flashing and trim, deck substrates, parapets, copings, walls, and other adjoining work to provide a noncorrosive and leakproof installation.

1. Dissimilar Metals: Prevent galvanic action of dissimilar metals.

3.4 INSTALLATION

A. General: Install metal roofing panels to profiles, patterns and drainage indicated and required for leakproof installation. Provide for structural and thermal movement of work. Seal joints for leakproof installation.

1. Seams: Provide uniform, neat seams.
2. Fasteners: Conceal fasteners where possible in exposed work. Cover and seal fasteners and anchors for watertight and leakproof installation.
3. Sealant-Type Joints: Provide sealant-type joint where indicated. Form joints to conceal sealant. Comply with Division 7 Joint Sealants Section for sealant installation.

B. Roofing Installation:

1. Install roofing plumb, true and in correct alignment with structural framing, in accordance with shop drawings and manufacturer's printed installation instructions.
2. Install roofing using manufacturer's concealed fastening system or non-corroding fasteners color-matched to panel.
3. Install trim using concealed fasteners where possible; sight-exposed non-corroding fasteners color-matched to trim are permitted on vertical surfaces only.

C. Installation Tolerances:

1. Variation from Plumb: Maximum 1/8" (3.2 mm).
2. Variation from Level: Maximum 1/8" (3.2 mm).
3. Variation from True Plane: Maximum 1/8" (3.2 mm).
4. Variation from True Position: Maximum 1/4" (6.4 mm).
5. Variation of Member from Plane: Maximum 1/8" (3.2 mm).

3.5 FIELD QUALITY REQUIREMENTS

A. Site Tests (Post-Installation Testing): Owner reserves right to perform post-installation testing of installed metal panel installation.

B. Manufacturer's Field Services: Upon Owner's request, provide manufacturer's field service consisting of product use recommendations and periodic site visit for inspection of product installation in accordance with manufacturer's instructions.

3.6 CLEANING

A. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance. Remove construction debris from project site and legally dispose of debris.

1. Remove strippable coating and perform dry wipe-down cleaning of panels as erected.

3.7 PROTECTION

A. Protection: Protect installed product's finish surfaces from damage during construction:

1. Protect installed products from damage by subsequent construction activities.
2. Replace products having damage other than minor finish damage.
3. Repair products having minor damage to finish in accordance with panel manufacturer's recommendations.
4. Architect shall be sole judge of acceptability of repair to damaged finishes; replace products having rejected repairs.

3.8 WIND SPEED

A. Schedules: Refer to panel schedule attached to this section.

B. Install roof to meet wind speed 144 mph requirement.

END OF SECTION 07610

SECTION 07920 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes sealants for the following applications, including those specified by reference to this Section:

1. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces:
   a. Control and expansion joints on exposed interior surfaces of exterior walls.
   b. Perimeter joints of exterior openings where indicated.
   c. Vertical control joints on exposed surfaces of interior unit masonry walls and partitions.
   d. Perimeter joints between interior wall surfaces and frames of interior doors, windows.
   e. Joints between plumbing fixtures and adjoining walls, floors, and counters.
   f. Other joints as indicated.

1.3 PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that establish and maintain airtight and watertight continuous joint seals without staining or deteriorating joint substrates.

1.4 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Samples for Initial Selection: Manufacturer’s color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance.

B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 40 deg F (4.4 deg C).
2. When joint substrates are wet.

B. Joint-Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.

C. Joint-Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

1.8 WARRANTY

A. General Warranty: Special warranties specified in this Article shall not deprive the Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

B. Special Installer's Warranty: Written warranty, signed by installer agreeing to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Ten years from date of Final Completion.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range for this characteristic.

2.2 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealant Standard: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant in the Elastomeric Joint-Sealant Schedule at the end of Part 3, including those referencing ASTM C 920 classifications for type, grade, class, and uses.

2.3 LATEX JOINT SEALANTS

A. Latex Sealant Standard: Comply with ASTM C 834 for each product of this description indicated in the Latex joint-Sealant Schedule at the end of Part 3.

2.4 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, of type indicated below and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:

1. Type C: Closed cell material with a surface skin.

C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F (minus 32 deg C). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and otherwise contribute to optimum sealant performance.

2.5 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants with joint substrates.

C. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint sealant performance.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint sealant manufacturer’s written instructions and the following requirements.

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints, (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint sealant manufacturer’s written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standards: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install sealants by proven techniques to comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses provided for each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

3.4 CLEANING

A. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 ELASTOMERIC JOINT SEALANT

A. Low Modulus Nonacid-Curing Silicone Sealant: Where joint sealants of this type are required, provide products complying with the following:

1. Products: Provide one of the following:
   a. 790; Dow Corning.
   b. Spectrum 1; Tremco.
   c. Equal products by Sonneborn, NUCO, Polymeric or approved equals are acceptable.
2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Additional Movement Capability: 100 percent movement in extension and 50 percent movement in compression for a total of 150 percent movement.
5. Use Related to Exposure: NT (nontraffic).
6. Use Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.
7. Use O Joint Substrates: Color anodic aluminum, galvanized steel, and brick.
8. Stain Test Response Characteristics: Non-staining to porous substrates per ASTM C 1248.
9. Applications: Exterior joints brick to brick and brick to aluminum and drywall soffit to brick.

3.6 LATEX JOINT SEALANT SCHEDULE

A. Latex Sealant: Where joint sealants of this type are indicated, provide products complying with the following:

1. Products: Provide one of the following:
   a. NuFlex 330; NUCO Industries, Inc.
   b. PSI-701; Polymeric Systems, Inc.

c. Sonolac; Sonneborn Building Products Div., ChemRex, Inc.
d. Tremflex 834; Tremco.

2. Applications: At drywall control joints.

END OF SECTION 07920

SECTION 08100 - FIBERGLASS DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General Conditions, Amendments to General Conditions, Supplementary Conditions and Sections in Division 1 of the Specifications apply to work of this Section.

1.2 DESCRIPTION

A. This section applies to fiberglass reinforced plastic (FRP) doors, frames, or approved equal.

1.3 SUBMITTALS

A. Shop Drawings shall provide pertinent dimensions, hardware locations, transom and lite sizes, louver locations and dimensions, and door elevations. Mortises for hardware must be molded in at the factory as the door is built. Mortises shall not be routed or cut out of the stile structure or the jambs.

1.4 PRODUCT HANDLING

A. All materials shall be delivered to thee site in sealed, undamaged containers fully identified with the manufacturer's name, project number, the tag location, the door type, color and weight. The doors and frames must be shipped in wood crates with wood perimeters. Store materials in original cartons, on edge in such a way to prevent falling or damage to face, corners or edges.

PART 2 - PRODUCTS

2.1 DOORS

A. Door shall be made of fiberglass reinforced plastic (FRP) using resins tailored to a specific corrosive environment (stated by the purchaser at the time the order is placed) and have a fiberglass content of 25% by weight. The doors shall be flush construction, having no seams or cracks. All mortises shall be molded in at the factory. The doors shall be 1-3/4" thick with a 15mil (plus or minus 3 mil) color gelcoat and have an R-factor of 12. Secondary painting over pultrusions to achieve color is not acceptable.

B. STILES AND RAILS

1. Shall be constructed starting from the outside toward the inside of a 15-20 mil gel coat of the color specified followed by a matrix of at least three layers of 1.5 ounce per square foot of fiberglass mat. The tile and rail shall be molded in one continuous piece to a U-shaped configuration and to the exact dimensions of the door (patented). In this manner there will be no miter joints or disparate materials used to form the one-piece stile and rail. Pultrusions will not be acceptable for stiles and rails as (1) the color gel coat is not an integral part of the structure (it must of necessity be applied as paint when the structure is assembled), and (2) mortises must be cut into the pultrusions, thus weakening by removing as much as two-thirds of its thickness and (3) the practice of mitered joints in pultrusions leaves access areas for penetration of contaminants to the inside of the door.

C. DOOR PLATES

1. Shall be molded in one continuous piece, starting with a 15-20 mil gel coat of the color specified, integrally molded with at least two layers of 1.5 ounce per square foot fiberglass mat and layer of 16 ounces per square yard unidirectional glass roving.

D. REINFORCEMENT

1. Adequate reinforcing and compression members shall be used to accommodate surface hinges, closers, locksets, kickplates, or push or pull plates. When engineering considerations dictate, mild steel is buried in the fiberglass matrix to provide enhanced screw holding power. In no case should screws be used into fiberglass matrix to provide holding for hinges, locks or closers or any structured attachment.
2. Thrubolting is recommended for attachment of hinges, and closers in as much as the strength of thrubolting is five to six times as great as edge attaching with screws. When thrubolting is to occur, a compression member is to be located which will provide memory and resistance to the torquing of thrubolts.
3. All voids between the door plates shall be completely filled with the equivalent of 4-6 pounds expanded polyurethane foam, having a flame spread of 25 or less per ASTM E-84. A phenolic-coated kraft honeycomb may be substituted for urethane foam where engineering requirements dictate.

E. FLAME SPREAD

1. All reinforcing resins shall contain a halogenated additive or coreactant plus Antimony Trioxide to achieve a flame spread of 25 or less per ASTM E-84 and shall be self-extinguishing per ASTM D-635.

F. COLOR:

1. The color of the door or frame shall be integrally molded as the part is made.
2. The color is to be as selected by the Architect.
3. The deposit of 15-20 mils of gel coat is the equivalent of 50 to 60 coats of paint applied by spray.

2.2 FRAMES

A. Frames shall be similar to the doors in construction and materials except the frames shall be solid fiberglass. The stop and frame will be molded all in one piece. The frame shall be integrally gelcoated to the customer's color when molded. Mortises will be molded in. It is not permitted to rout in mortises or remove any material from the head or jambs, to provide mortises.

B. Reinforcement for mounting hinges, closers, etc., shall be of mild steel plates strategically located and buried in the resin-glass matrix so they will not be exposed to the elements.

B. The jamb shall be flat on the backside (against the openings) and uniform in thickness so as to provide a solid, uniform surface against the wall opening. No wood blocks or spacers are permitted.

C. Rated/labeled fiberglass door frame required where indicated on plans and schedules.

2.3 HARDWARE

A. 1 ½ pair heavy duty stainless steel butts.
B. Brushed chrome level handle – entry lock function.

C. Weather stripping.
D. Aluminum threshold.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Installation shall be in strict compliance with manufacturer's written instructions using non-corrosive materials and methods.

3.2 GUARANTEE

A. Door Company shall unconditionally guarantee its registered doors for ten years against failure due to corrosion from the specific environment named at the time of purchase.

END OF SECTION 08100

SECTION 08111 - STANDARD STEEL DOOR FRAMES

PART 1 - GENERAL:

1.1 SUMMARY:

A. Work in this section includes:

1. Hollow Metal Frames

B. Related work includes:

1. Flush wood doors (section 08211)
2. Glazing (section 08800)
3. Joint sealers (section 07900)

1.2 SUBMITTALS: With manufacturer's standard details and specifications for steel doors and frames, submit shop drawings showing application to project, as required.

1.3 STANDARDS: In addition to other specified requirements, comply with Steel Door Institute "Recommended Specifications for Standard Steel Doors and Frames" ANSI/SDI-100.

PART 2 - PRODUCTS

2.1 MANUFACTURER: One of the following:

A. Ceco Corp.
B. Curries
C. Steelcraft Manufacturing Co.
D. Amweld
E. Or approved equal.

2.2 MATERIALS

A. Supports and Anchors: Fabricate of not less than 14-gage sheet steel.

B. Fire-Rated Assemblies: Provide units that display appropriate UL or FM labels for fire-rating indicated.

C. Fabrication: Fabricate units to be rigid, neat in appearance, and free from defects, warp or buckle. Weld exposed joints continuously, grind, dress, and make smooth, flush and invisible.

D. Prepare steel door frames to receive finish hardware, including cutouts, reinforcing, drilling and tapping, complying with ANSI A 115 "Specifications for Door and Frame Preparation for Hardware."

E. Frames: Comply with ANSI/SDI-100, of the types and styles indicated, for materials quality, metal gages, and construction details.

1. Provide galvanized frames – Typical all exterior doors.
2. Fabricate frames with mitered, coped, or welded corners.
3. Prepare frames to receive 3 silencers on strike jambs of single-door frames and on heads of double-door frames.
4. Provide 26-gage steel plaster guards or mortar boxes, welded to frame, at back of hardware cutouts where installed in concrete, masonry or plaster openings.
5. Protect inside faces of frames in plaster or masonry wall construction, which are placed with anti-freeze additives, using high-build fibered asphalt emulsion coating.
6. See plans for Fire Ratings required.

PART 3 - EXECUTION

3.1 INSTALLATION: Install hollow-metal units in accordance with manufacturer's instructions and final shop drawings. Fit doors to frames and floors with clearances specified in ANSI/SDI-100.

A. Install frames in accordance with SDI 105.
B. Doors and frames shall be installed plumb, true and in alignment with each other. Frames shall be securely anchored, filled solid with grout and completely rigid in walls.
C. Install fire-rated units in accordance with NFPA Std. No. 80.
D. Finish hardware is specified in another Division 8 section. Coordinate all hardware requirements with shop drawings.

END OF SECTION 08111

SECTION 08120 - ALUMINUM DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Glazed aluminum swinging doors.
2. Aluminum door frames.

B. Related work includes:
1. Glazing (08800)

1.2 PERFORMANCE REQUIREMENTS

A. Exterior Assemblies: Design to comply with the D.P. Ratings as required and air infiltration requirements. Wind load required 144 mph.

1.3 SUBMITTALS

A. Product Data: Manufacturer's material specifications, drawings of standard components, and installation recommendations.

B. Shop Drawings: Show elevations, field measurements, composite members, reinforcement, anchorages, flashing, attachments, expansion provisions, hardware mounting, and glazing. Shop drawings should be approved by the manufacturer. Provides engineering calculations to meet 144 mph wind load.

C. Samples for Verification of Anodized Finishes: For each type and color of anodized finish, submit 12-inch-long sections of extrusions and formed sections and 6-inch-square sheets. Submit at least 2 pieces for each color showing full range of color variation.

1.4 QUALITY ASSURANCE

A. Standard for Air Infiltration Testing: ASTM E 283; report result as cubic feet per minute per unit of measurement indicated, at pressure differential indicated.

B. Standard for Condensation Resistance Testing: AAMA 1503.1; report result as CRF.

C. Standard for Thermal Transmission Testing: AAMA 1503.1; report result as U-value (Btu per hour per square foot per degree F).

D. Design Criteria: The drawings indicate the size, profile, and dimensional requirements of aluminum entrance and storefront work required and are based on the specific types and models indicated. Aluminum entrance by other manufacturers may be considered, provided deviations in dimensions and profiles are minor and do not change the design concept as judged by the Architect. The burden of proof of equality is on the proposer.

1.5 PROJECT CONDITIONS

A. Take field measurements as required for correct fit.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Aluminum Doors and Frames:

1. Provide products complying with requirements of the contract documents and made by one of the following or and approved equal:
    a. Kawneer Company, Inc. (TRIFAB 451T or 1600 Series)

2.2 FRAMING SYSTEMS

A. Aluminum Door and Fames: Extruded tube or channel frames with either mechanical or welded joints.
1. Finish:
    a. Clear Anodized finish.

2.3 SWINGING DOORS

A. Stile and Rail Doors: Glazed doors with tubular extruded aluminum frame members.
1. Frame joints: Either concealed mechanically fastened, using tie rods or j-bolts and reinforcing plates; or welded.
2. Thickness: 1-3/4 inches.
3. Stile width: 3-1/2 inches nominal.
4. Full glazed, with no intermediate mullions.
5. Gllazing stops: Snap-on extruded aluminum, designed to allow replacement of glazing without disassembly of frame. Provide nonremovable exterior stops.
6. Glaze doors in factory.
7. Finish:
    a. Clear Anodized finish.

B. Weatherstripping:
1. At fixed stops: Replaceable, compression type molded gaskets of neoprene or EPDM rubber complying with ASTM C 864 or of polyvinyl chloride complying with ASTM D 2287.
2. At other edges: Replaceable woven polypropylene, wool, or nylon pile, with aluminum or nylon fabric backing, complying with AAMA 701.
3. At door bottom: Adjustable molded EPDM or vinyl sweep, continuously contacting threshold; concealed mounting.
4. Provide weatherstripping on all exterior doors.

C. Silencers: Neoprene bumpers.
1. Provide on all interior doors.

D. Hardware for Aluminum Doors: Provide all hardware as required for proper operation, in accordance with the schedule located at the end of this section.
1. Finish: Match doors.

E. Hardware: Closer required.

F. Thresholds: Extruded aluminum thresholds in mill finish, complete with anchors and clips. Verify type and size with field conditions prior to ordering. Threshold to be ADA accessible.

2.4 MATERIALS - GENERAL

A. Aluminum Members: Kawneer TriFab 451T – Clear Anodized Finish.

B. Fasteners: Compatible with aluminum; aluminum, nonmagnetic stainless steel, or other noncorrosive, noncorrodible material.
1. Do not use exposed fasteners.

C. Concealed Flashing: Fully annealed, soft stainless steel, 26 gage minimum; or extruded aluminum, 0.032 inch minimum.

D. Miscellaneous Concealed Metal Members: High-strength aluminum or nonmagnetic stainless steel; hot-dip galvanized steel complying with ASTM A 123 may be used for members which are not exposed to weather or abrasion.

E. Concrete Inserts: Cast iron, malleable iron, or steel hot-dip galvanized in accordance with ASTM A 123.

F. Dissimilar Metal Coating: Cold-applied asphalt mastic, or other nonconductive, nonabsorptive material.

G. Glass and Glazing Accessories: Provide products specified elsewhere in Division 8.
1. Use 1” insulated glass as specified in section 08800 at all locations

H. Joint Sealers: Provide products specified in Division 7.

J. Provide muntins/mullions as shown on drawing.

2.5 FABRICATION

A. Framing System: Pre-cut and perform all finishing in factory or shop.
1. When it is necessary to begin fabrication without actual field measurements, provide adequate fabrication tolerances for correct fit.
2. Fit joints tightly with adjacent members in correct relationship.
3. Select members for fabrication so that adjacent anodized extruded aluminum members do not have color or texture variation greater than half of the range indicated in the submitted samples.

B. Doors: Factory-fabricate doors and factory-install all hardware except surface-mounted items.
1. Perform fabrication required for hardware before finishing.

C. Welding: Perform welding before finishing; use methods which do not discolor metal; grind exposed welds flush; match original finish.

D. Reinforcing: Provide as required to comply with performance requirements for rigidity and to support hardware; isolate dissimilar metals as specified in "Installation."

E. Avoid damage to finishes.

PART 3 - EXECUTION

3.1 PREPARATION

A. Examine structures; report conditions in writing, which will adversely affect installation.

3.2 INSTALLATION

A. Install in accordance with manufacturer's recommendations and instructions.

B. Install plumb and level, square and true, in correct location; support adequately and securely anchor.

C. Separate aluminum exposed to weather from dissimilar metals; coat dissimilar metals that are in drainage cavities using one of the materials specified. Aluminum, stainless steel, zinc, cadmium, and small areas of white bronze are not considered dissimilar from each other.

D. Coat all metals that come into contact with masonry, concrete, and treated wood, using one of the materials specified.

E. Install surface-mounted hardware in accordance with hardware manufacturer's instructions.

F. Install glass using methods specified elsewhere in Division 8. Factory install to greatest extent possible.

G. Set threshold units level and accurately in seal strip of butyl rubber sealant or polyisobutylene mastic sealant. Cope and align with frames and doors, and at proper elevation for door operation. Shim, if necessary, for full continuous support of threshold at each edge and intermediate legs, if any. Use non-corrosive shims of metal or plastic, set in adhesive or otherwise anchored against dislocation from impact or traffic upon threshold.

3.3 ADJUST AND CLEAN

A. Adjust each operable unit for correct function and smooth, free operation and so doors close tightly.

B. Clean exterior and interior soon after installation of glass, taking care to avoid damage to finishes.

C. Clean glass surfaces as specified elsewhere.

END OF SECTION 08120

SECTION 08211 - WOOD DOORS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Section includes:

1. Wood Doors

B. Related work:

1.	Standard Steel Door Frames	(08111)
2.	Door Hardware	(08710)
3.	Painting	(09900)

1.2 QUALITY STANDARDS

A. Comply with NWWDA I.S.1 and AWI "Architectural Woodwork Quality Standards".

B. Comply with WIC "Manual of Millwork" for requirements in the door grade comparable to AWI grade indicated and exceeding those in other referenced standards.

1.3 SUBMITTALS: In addition to product data, submit the following:

A. Shop Drawings indicating location, size, face material, and finishes of each door required.

B. Samples 1-0" square, of each type of core construction, face material and finish required.

PART 2 - PRODUCTS:

2.1 MANUFACTURERS

A. Subject to compliance with requirements, provide wood doors by one of the following or approved equal:

1. Allegany Wood Works
2. Fortress Door C
3. Weyerhaeuser Doors

2.2 GENERAL WOOD DOOR PRODUCT REQUIRMENTS:

A. Provide doors with same exposed surface material on both faces of each door, unless otherwise indicated.

B. Interior solid core doors for finish as follows:

1. Faces: Panel, Stain Grade - Birch

C. Interior fire-rated solid core doors:

1. Labeled and listed for rating indicated, by testing and inspection agency acceptable to authorities having jurisdiction, complying with the following requirements:

a. Faces and AWI Grade: Match faces of non-rated doors in same area of building, unless otherwise indicated.

b. Edge Construction: Solid hardwood, no finger joints, matching edge.

D. Fabricate flush wood doors to produce doors complying with following requirements:

1. In sizes indicated for job site Fitting.

2. Factory pre-fit and pre-machine doors to fit frame opening sizes indicated and complying with AWI pre-fitting tolerances.

3. Metal Astragals: Pre-machine astragals and formed steel edges for hardware where required for pairs of fire rated doors.

4. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of doors required.

a. Light Openings: Trim openings with moldings of material and profile indicated.

E. Shop seal faces and edges of doors for field-applied transparent finish with stain.

PART 3 - EXECUTION

3.1 INSTALLATION:

A. Install wood doors to comply with manufacturer's instructions and of referenced AWI standard and as indicated.

B. Install fire rated doors in corresponding fire-rated frames in accordance with requirements of NFPA No. 80.

C. Align and fit door in frames with uniform clearances and bevels. Machine doors for hardware. Seal cut surfaces after fitting and machining.

D. Pre-fit Doors: Fit to frames for uniform clearance at each edge.

E. Existing openings for new doors in existing openings, new door to accommodate opening. Field Verify.

END OF SECTION 08211

SECTION 08520 - ALUMINUM WINDOWS/STOREFRONT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Fixed windows

B. Operational windows as indicated.

C. This Section includes Architectural Grade aluminum windows of the performance class indicated. Window types required include the following:

1.3 PERFORMANCE REQUIREMENTS

A. General: Provide aluminum windows engineered, fabricated, and installed to withstand normal thermal movement, wind loading, and impact loading without failure, as demonstrated by testing manufacturer's standard window assemblies representing types, grades, classes, and sizes required for Project according to test methods indicated.

B. Test Criteria: Testing shall be performed by a qualified independent testing agency based on the following criteria:

1. Design wind velocity at Project site is 144 mi/h.

2. Heights of window units above grade at window centerline are indicated on or can be determined from the Drawings. Consult with the Architect, if necessary, to confirm required l loading and test pressures.

3. Test Procedures: Test window units according to ASTM E 283 for air infiltration, both ASTM E 331 for water penetration, and ASTM E 330 for uniform load deflection and structural performance.

C. Performance Requirements: Testing shall demonstrate compliance with requirements indicated in AAMA 101 for air infiltration, water penetration, and structural performance for type, grade, and performance class of window units required. Where required design pressure exceeds the minimum for the specified window grade, comply with requirements of AAMA 101, Section 3, "Optional Performance Classes", for higher than minimum performance class.

D. Air-Infiltration Rate: Not more than 0.15 cfm/ft. (1.67 cu. m/h per m) of area for an inward test pressure of 6.24 lbf/sq. ft. (299 Pa).

E. Water Penetration: No water penetration as defined in the test method at an inward test pressure of 20 percent of the design pressure.

F. Uniform Load Deflection: No deflection in excess of 1/175 of any member's span during the imposed load, for a positive (inward) and negative (outward) test pressure of 60 lbf/sq. ft. (2873 Pa).

G. Thermal Movements: Provide window units that allow thermal movement resulting from the following maximum change (range) in ambient temperature when engineering, fabricating, and installing aluminum windows to prevent buckling, opening of joints, and overstressing of

components, connections, and other detrimental effects. Base engineering calculation on actual surface temperatures of materials due to solar heat gain and nighttime sky heat loss.

H. Temperature Change (Range): 120 degrees F (67 degrees C), ambient; 180 degrees F (100 degrees C), material surfaces.

I. Design Criteria: The drawings indicate the size, profile, and dimensional requirements of aluminum window work required and are to be field verified and coordinated with metal building structure.

1. Aluminum window: Kawneer TriFab 451-T.

1.5 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

B. Product Data for each type of window required, including the following:

1. Construction details and fabrication methods.
2. Profiles and dimensions of individual components.
3. Data on hardware, accessories, and finishes.
4. Recommendations for maintaining and cleaning exterior surfaces.

C. Shop Drawings showing fabrication and installation of each type of window required including information not fully detailed in manufacturer's standard Product Data and the following:

D. Samples for initial color selection on 12-inch (300-mm) long sections of window members. Where finishes involve normal color variations, include Sample sets showing the full range of variations expected.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced Installer has completed installation of aluminum windows similar in material, design, and extent to those required for this Project and with a record of successful in-service performance.

B. Single-Source Responsibility: Obtain aluminum windows from one source and by a single manufacturer.

1.7 PROJECT CONDITION

A. Field Measurements: Check window openings by field measurements before fabrication and show recorded measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1.8 WARRANTY

A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents. For:

1. Structural failures including excessive deflection, water leakage, air infiltration, or condensation.

2. Faulty operation of sash and hardware.

3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

B. Warranty Period for Metal Finishes and Glass: Five (5) years after date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available manufacturer: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following: (See also window schedule on drawings.)

B. Fixed Windows: Storefront.
1. Kawneer Company, Inc. (TRIFAB 451T)

C. Equal product by USG or Old Castle will be acceptable.

2.2 MATERIALS

A. Aluminum Extrusions: Provide alloy and temper recommended by manufacturer for strength, corrosion resistance, and application of required finish, but not less than 22,000-psi (150-MPa) ultimate tensile strength and not less than 0.062 inch (1.6mm) thick at any location for main frame and sash members.

B. Fasteners: Provide aluminum, nonmagnetic stainless steel, epoxy adhesive, or other materials warranted by manufacturer to be non-corrosive and compatible with aluminum window members, trim, hardware, anchors, and other components of window units.

C. Reinforcement: Where fasteners screw anchor into aluminum less than 0.125 inch (3.2 mm) thick, reinforce interior with aluminum or nonmagnetic stainless steel to receive screw threads or provide standard, non-corrosive, pressed-in, splined grommet nuts.

D. Exposed Fasteners: Except where unavoidable for application of hardware, do not use exposed fasteners. For application of hardware, use fasteners that match finish of member or hardware being fastened, as appropriate.

E. Anchors, Clips, and Window Accessories: Fabricate anchors, clips, and window accessories of aluminum, non-magnetic stainless steel, or hot-dip zinc-coated steel or iron complying with requirements of ASTM B 633; provide sufficient strength to withstand design pressure indicated.

1. Provide stripping with integral centerline barrier fin of semi-rigid plastic sheet of polypropylene.

F. Sealant: For sealants required within fabricated window units, provide type recommended by manufacturer for joint size and movement. Sealant shall remain permanently elastic, non-shrinking, and non-migrating. Comply with Division 7 Section “Joint Sealants: of these Specifications for selection and installation of sealants.

G. Glass and Glazing Accessories: Use 1” insulated glass as specified in Section 08800 at all locations. (Impact glazing required)

2.3 ACCESSORIES

A. Provide operators and locks.

2.4 FINISHES

A. Comply with NAAMM “Metal Finishes Manual” for recommendations relative to applying and designating finishes.

B. Finish designations prefixed by AA conform to the system established by the Aluminum Association for designating aluminum finishes.

C. Class I, Color Anodic Finish: AA-M12C22A42/42 (Mechanical Finish: non-specular as fabricated; Chemical Finish: etched, medium matte: Anodic Coating: Architectural Class I, integrally colored or electrolytically deposited color coating 0.018 mm or thicker) complying AAMA 606.1 or AAMA 608.1.
   1. Color to be Clear Anodized Aluminum.

PART 3 - EXECUTION

3.1 INSPECTION

A. Inspect openings before installation. Verify that rough or masonry opening is correct and sill plate is level.

3.2 INSTALLATION

A. Comply with manufacturer’s specifications and recommendations for installing window units, hardware operators, and other components of the Work.

B. Set window units plumb, level, and true to line, without warp or rack of frames or sash. Provide proper support and anchor securely in place.

   1. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials by complying with requirements specified under “Dissimilar Materials” Paragraph in appendix to AAMA 101.

C. Sealants, joint fillers, and gaskets to be installed after installation of window units are specified in another Division 7 Section.

3.3 CLEANING

A. Cleaning aluminum surfaces promptly after installing windows. Exercise care to avoid damage to protective coatings and finishes. Remove excess glazing and sealant compounds, dirt, and other substances. Lubricate hardware and other moving parts.

B. Clean glass of pre-glazed units promptly after installing windows. Comply with requirements of Division 8 Section “Glazing” for cleaning and maintenance.

3.4 PROTECTION

A. Provide final protection and maintain conditions, in a manner acceptable to aluminum window manufacturer, that ensure window units are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 08520

SECTION 08710 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Related Documents: Drawings and General Provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Definition:

1. "Finish Hardware" includes items known commercially as finish hardware which are required for swing, sliding and folding doors, except special types of unique and non-matching hardware specified in the same section as the door and door hardware. For any door not shown to receive hardware, provide hardware as shown for a similar opening. If there is no similar opening, provide three (3) butt hinges, one (1) mortise lockset, one (1) door closer, one (1) kick-plate, and one (1) door stop per leaf.

C. Submittals: Submit through Contractor required Product Data, final Hardware Schedule, separate Keying Schedule, and Samples as specified in this Section, unless otherwise indicated.

D. Construction Schedule: Inform Contractor promptly of estimated times and dates that will be required to process Submittals, to furnish Templates, to deliver hardware, and to perform other work associated with furnishing door hardware for purposes of including this Data in Construction Schedule. Comply with this Schedule.

E. Coordination and Templates: Assist Contractor as required to coordinate hardware with other work in respect to both fabrication and installation. Furnish Contractor with templates and deliver hardware to proper locations.

F. Product Handling: Package, identify, deliver, and inventory door hardware specified in this Section.

G. Discrepancies: Based on requirements indicated in Contract Documents in effect at time of door hardware selection, furnish types, finishes, and quantities of door hardware, including fasteners, and Owner's maintenance tools required to comply with specified requirements and as needed to install and maintain hardware. Furnish or replace any items of door hardware resulting from shortages and incorrect items at no cost to the Owner or Contractor. Obtain signed receipts from Contractor for all delivered materials.

H. Fire-Rated Openings: Provide hardware for fire-rated openings in compliance with NFPA Standard No. 80 and local building code requirements. Provide only hardware which has been tested and listed by UL or FM types and sizes of doors required and complies with requirements of door and door frame labels.

1. Where Emergency Exit devices are required on fire-rated doors (with supplementary marking on doors UL or FM labels indicating "fire door to be equipped with fire exit hardware") provide UL or FM label on exit devices indicating "fire exit hardware."

2. Provide hardware as required to meet label requirements whether scheduled or not.

1.2 CONTRACTOR'S RESPONSIBILITIES SHALL BE AS FOLLOWS:

A. Submittals: Coordinate and process submittals for door hardware in same manner as submittals for other work.

B. Construction Schedule: Cooperate with door hardware supplier in establishing schedules dates for submittals and delivery of templates and door hardware. Incorporate in construction schedule the times and dates related to furnishing hardware by door hardware supplier.

C. Coordination: Coordinate door hardware with other Work. Furnish Hardware supplier or manufacturer with shop drawings of other work where required or requested. Verify completeness and suitability of hardware with supplier.

D. Product Handling: Provide secure lock-up for hardware delivered to the site. Inventory hardware jointly with representative of hardware supplier and issue signed receipts for all delivered materials.

E. Installation Information: The general types and approximate quantities of hardware required for this Project are indicated at the end of this Section in order to establish Contractor's costs for installation and other work not included in allowance.

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification section.

1. Product data including manufacturer's technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.

2. Final hardware schedule coordinated with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

3. Final Hardware Schedule Content: Based on hardware indicated, organize schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Include the following information:

a. Type, style, function, size, and finish of each hardware item.
b. Name and manufacturer of each item.
c. Fastenings and other pertinent information.
d. Location of each hardware set cross referenced to indications on Drawings both on floor plans and in door and frame schedule.
e. Explanation of all abbreviations, symbols, and codes contained in schedule.
f. Mounting locations for hardware.
g. Door and frame sizes and materials.
h. Keying information.

B. Submittal Sequence: Submit final schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work that is critical in the Project Construction Schedule. Include with schedule the product data, samples, shop drawings of other work affected by door hardware, and other information essential to the coordinated review of schedule.

C. Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.

D. Templates for doors, frames, and other work specified to be factory prepared for the installation of door hardware. Check shop drawing of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

1.4 QUALITY ASSURANCE

A. Single Source Responsibility: Obtain each type of hardware (latch and lock sets, hinges, closers, etc.) from a single manufacturer.

B. Fire-Rated Openings: Provide door hardware for fire-rated openings that complies with NFPA Standard No. 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and are identical to products tested by UL, Warnock Hersey, FM, or other testing and inspecting organization acceptable to authorities having jurisdiction for use on types and sizes of doors indicated in compliance with requirements of fire-rated door and door frame labels.

1.5 PRODUCT HANDLING

A. Tag each item or package separately with identification related to final Hardware Schedule and include basic installation instructions with each item or package.

B. Packaging of door hardware is responsibility of supplier. As material is received by hardware supplier from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set number to match set numbers of approved hardware schedule. Two more identical sets may be packed in same container.

C. Inventory door hardware jointly with representative of hardware supplier and hardware installer until each is satisfied that count is correct.

D. Deliver individually packaged door hardware items promptly to place of installation (Shop or Project site).

E. Provide secure lock-up for door hardware delivered to the Project, but not yet installed. Control handling and installation of hardware items that are not immediately replaceable so that completion of the work will not be delayed by hardware losses both before and after installation.

1.6 MAINTENANCE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 The following types of hardware will be used generally, but are not restricted to same:

A. Hardware Schedule: All hardware furnished with US 32D Finish unless otherwise noted.

HW SET #1 Omitted

HW SET #2				
Doors: 101A, 102A, 103A				
QTY	**DESCRIPTION**	**PRODUCT #**	**MFR**	**ALT. MFR**
3	HINGE	5BB1 4.5 x 4.5 NRP 652	IVES	SCHLAGE, EMTEK
1	CYL LOCK (OFFICE/ENTRY)	K511CP6D DANE 626	FALCON	BEST, BALDWIN
1	WALL STOP	WS407CCV 630	IVES	BALDWIN, HAGAR
3	SILENCER	SR64 GREY	IVES	GLYNN JOHNSON,

HW SET #3				
Doors: 107A, 108A, 109A				
QTY	**DESCRIPTION**	**PRODUCT #**	**MFR**	**ALT. MFR**
3	HINGE	5BB1 4.5 x 4.5 NRP 652	IVES	SCHLAGE, EMTEK
1	CYL LOCK (PRIVACY)	K301S DANE 626	FALCON	BEST, BALDWIN
1	CLOSER	SC81 RwPA FC 689	FALCON	LCN, NORTON
1	KICKPLATE	8400 8” x 34” 630	IVES	HAGAR, SCHLAGE
1	WALL STOP	WS407CCV 630	IVES	BALDWIN, HAGAR
3	SILENCER	SR64 GREY	IVES	GLYNN JOHNSON,
1	DEAD BOLT LOCK		BALDWIN	SCHLAGE, KWIKSET

HW SET #4				
Doors: 110A, 111A				
QTY	**DESCRIPTION**	**PRODUCT #**	**MFR**	**ALT. MFR**
3	HINGE	5BB1 4.5 x 4.5 NRP 652	IVES	SCHLAGE, EMTEK
1	CYL LOCK (PRIVACY)	K301S DANE 626	FALCON	BEST, BALDWIN
1	CLOSER	SC81 RwPA FC 689	FALCON	LCN, NORTON
1	KICKPLATE	8400 8” x 34” 630	IVES	HAGAR, SCHLAGE
1	WALL STOP	WS407CCV 630	IVES	BALDWIN, HAGAR
3	SILENCER	SR64 GREY	IVES	GLYNN JOHNSON,

HW SET #5				
Doors: 106A, 114A, 113A				
QTY	**DESCRIPTION**	**PRODUCT #**	**MFR**	**ALT. MFR**
3	HINGE	5BB1 4.5 x 4.5 NRP 652	IVES	SCHLAGE, EMTEK
1	CYL LOCK (PRIVACY)	K581CP6D DANE 626	FALCON	BEST, BALDWIN
1	WALL STOP	WS407CCV 630	IVES	BALDWIN, HAGAR
3	SILENCER	SR64 GREY	IVES	GLYNN JOHNSON,

HW SET #6				
Doors: 100A, 100B, 104A, 112A				
QTY	**DESCRIPTION**	**PRODUCT #**	**MFR**	**ALT. MFR**
3	HINGE	5BB1 4.5 x 4.5 NRP 652	IVES	SCHLAGE, EMTEK
1	CYL LOCK (ENTRY)	986-SCHLAGE C KEYWAY-626	FALCON	BEST, BALDWIN
1	CLOSER	SC81 DSHO FC 689	FALCON	LCN, NORTON
1	KICKPLATE	8400 8” x 46” 630	IVES	HAGAR, SCHLAGE
1	THRESHOLD	425 48” MS/LA ALUM	NGP	PEMKO, M-D
1	SWEEP	200NA 48” ALUM	NGP	PEMKO, BRIXWELL
1	GASKETING	155V (1 @ 48” x 2 @ 84”) ALUM	NGP	PEMKO, MONROE

PART 3 - EXECUTION

3.1 INSTALLATION

A. Mount hardware units at heights indicated in following applicable publications, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by Architect.

B. "Recommended Locations for Builders Hardware for Standard Steel doors and Frames" by the Door and Hardware Institute.

C. "Recommended Locations for Builders Hardware for Custom Steel Doors and Frames" by the Door and Hardware Institute. NWWDA Industry Standard I.S.1.7, "Hardware Locations for Wood Flush Doors".

D. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation or application of surface protection with finishing work specified in the Division 9 Sections. Do not install surface-mounted items until finishes have been completed on the substrates involved.

E. Set units level, plumb, and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

F. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

G. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements specified in Division 7 Section "Joint Sealers".

H. Weather Stripping and Seals: Comply with manufacturer's instructions and recommendations to the extent installation requirements are not otherwise indicated.

3.2 ADJUSTING, CLEANING AND DEMONSTRATING

A. Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made. Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

B. Clean adjacent surfaces soiled by hardware installation.

C. Instruct Owner's personnel in the proper adjustment and maintenance of door hardware and hardware finishes.

D. Six-Month Adjustment: Approximately six month after the date of Substantial Completion, the Installer, accompanied by representatives of the manufacturers of latch sets and locksets and of door control devices, and of other major hardware suppliers, shall return to the Project to perform the following work:

1. Examine and re-adjust each item of door hardware as necessary to restore function of doors and hardware to comply with specified requirements.

2. Consult with and instruct Owner's personnel in recommended additions to the maintenance procedures.

3. Replace hardware items that have deteriorated or failed due to faulty design, materials, or installation of hardware units.

4. Prepare a written report of current and predictable problems (of substantial nature) in the performance of the hardware.

3.3 KEYING

A. Provide Grand Master and Master Keying into the NCSPA Keying System. Provide 4 keys to each door, 4 Master keys and 4 Grand Master keys.

END OF SECTION 08710

SECTION 08800 - GLAZING

PART 1 -GENERAL

1.1 SUMMARY:

A. Work included in this section includes:
1. All glass as shown on drawings

B. Work related includes
1. Aluminum doors and frames (Section 08120)
2. Steel door frames (Section 08111)

1.2 STANDARDS:

A. Install glazing with dry glazing system.

B. Glazing Standard: Comply with FGMA "Glazing Manual" and "Sealant Manual".

C. Safety Glazing Standard: Comply with ANSI Z97.1 and testing requirements of 16 CFR Part 1201 for category II materials.

D. Fire Resistance Rated Wire Glass: Provide UL-labeled and listed products, identical with those tested per ASTM E 163 (UL 9).

E. Insulating Glass Certification Program: Provide insulating glass units complying with requirements indicated which are permanently marked with certification label of the following inspecting and testing agency:
1. Insulating Glass Certification Council.

F. Preconstruction Sealant-Substrate Tests: Submit glass and glazing substrate materials to manufacturer of glazing sealants for testing to determine if primers are required and for sealant compatibility.

1.3 SUBMITTALS: Submit shop drawings on dry glazing systems with physical sample 6" long.

A. Comply with requirements of section 01340
B. See page 3 for 2.1 manufacturers

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

A. LOF, Libby-Ownes-Ford Co.
B. PPG Industries, Inc.
C. CE, Combustion Engineering, Inc.
D. Guardian Industries

2.2 GLAZING SCHEDULE:

A. Tempered Glass
1. Provide tempered glass where required by code.
B. Interior Glass to be 3/8” Tempered.
C. Impact glazing at all exterior openings.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Meter frame shall not be in contact with installed glass.

B. Setting blocks: Lites larger than 6 sq. ft., and all glass thicker than 1/8", shall be installed on 2 setting blocks at the bottom quarter points.

C. Edge Blocks: In dry glazing systems, one 3" neoprene edge block shall be installed in each jamb, allowing 1/8" space between edge block and glass edge.

D. Watershed: Glass shall be installed in frames with sealant forming a 1/16" watershed, both sides.

E. Glass shall be installed clean, free of chips, cracks, scratches, blemishes, oil, dirt, stains or visible waves or distortions.

F. All glass shall be cleaned immediately prior to final inspection.

3.2 PERFORMANCE:

A. System to provide for expansion and contraction within system components caused by a cycling temperature range of 170 F degrees without causing detrimental effects to system or components.

B. Design and size members to withstand dead loads and live loads caused by pressure and suction of wind acting normal to plane of wall as calculated in accordance with the requirements of the N. C. Building Code, and as measured in accordance with ANSI/ASTM E330.

C. Limit air infiltration through assembly of 0.06 cu. ft./min./sq. ft. of assembly surface area, measured at a reference differential pressure across assembly of 0.3 inches water gage, measured in accordance with ANSI/ASTM E283.

D. System to accommodate, without damage to system or components, or deterioration of perimeter seal: Movement within system; movement between system and perimeter framing components; dynamic loading and release of loads; and deflection of structural support framing.

E. Maintain continuous air and vapor barrier throughout assembly primarily in line with inside pane of glass.

F. Maintain: Vapor seal with Interior Atmospheric Pressure of One Inch (25 mm) sp, 72 degrees F (22 degrees C), 40 percent RH: no failure.

END OF SECTION 08800

SECTION 09260 - GYPSUM WALLBOARD SYSTEMS

PART 1- GENERAL:

1.1 SUMMARY

A. Work included in this section: Provide gypsum drywall and accessories where shown on the drawings, as specified herein, and as needed for a complete and proper installation.

B. Related work includes
1. Painting (section 09900)
2. Building insulation (section 07200)
3. Metal Studs (section 09110)
4. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 01340.

B. Product data: Within 45 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
1. Materials list of items proposed to be provided under this Section.
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
3. Manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the work.

C. Mock-ups
1. At an area on the site where approved by the Architect, provide a mock-up gypsum wallboard panel.
   a. Make the panel approximately 8'-0" x 8'-0".
   b. Provide one mock-up panel for each gypsum wallboard finish used on the work.
   c. The mock-ups may be used as part of the work, and may be included in the finished work, when so approved by the Architect.
   d. Revise as necessary to secure the Architect's approval.
2. The mock-up panels, when approved by the Architect, will be used as datum points for comparison with the remainder of the work of this Section for the purpose of acceptance or rejection.
3. If the mock-up panels are not permitted to be part of the finished work, completely demolish and remove them from the job site upon completion and acceptance of the work of this Section.
4. The mock panel shall be completely finished including painting.

1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01620.

PART 2 -PRODUCTS:

2.1 MANUFACTURERS: Subject to compliance with requirements, provide gypsum board and related products by one of the following, or pre-approved equal:

A. National Gypsum Co.

B. Georgia-Pacific Corp.

C. Gold Bond Building Products Div., National Gypsum Co.

D. United States Gypsum Co.

E. Louisiana-Pacific

2.2 COMPONENTS FOR SUSPENDED CEILING:

A. Concrete Inserts: ASTM E 488
   1. Embedded type capable of sustaining a load equal to 3 times that imposed by ceiling construction.

B. Steel Rigid Furring Channels: ASTM C 645
   1. Where shown as “Furring” provide manufacturer’s 7/8” furring channels.

C. Steel Studs for Furring Channels: ASTM C 645.

D. Submit proposed suspension system for approval

2.3 GYPSUM BOARD: Provide gypsum board of types indicated in maximum lengths available to minimize end joints:

A. General
   1. Provide mildew resistant/water resistant gypsum wallboard complying with ASTM D3273, in 48” widths and in such lengths as will result in a minimum of joints.
   2. Regular wallboard: Provide mildew resistant/water resistant, 5/8” thick except as may be shown otherwise on the drawings.
   3. Ceilings/Soffits: 5/8” mildew / water resistant or as shown on the drawings.

2.4 TRIM ACCESSORIES: ASTM C 840: Mfr's standard trim accessories, including cornerbead and edge trim of beaded type with face flanges for concealment in joint compound except where semi-finishing or exposed type is indicated.

A. Provide corner bead formed from zinc alloy, Series 800.

B. Provide one-piece control joints with 1/4 inch wide by 7/16 inch deep vee-shaped slot, covered with removable tape, of roll- formed zinc or extruded vinyl as recommended by gypsum board Mfr. space not more than 20 feet on centers.

C. Edge beads for use at perimeter of ceilings:
   1. Provide angle shapes with wings not less than ¾” wide.
   2. Provide concealed wing perforated for nailing, and exposed wing edge folded flat.

3. Exposed wing may be factory finished in white color.

2.5 GYPSUM BOARD JOINT TREATMENT MATERIALS: ASTM C 475 and ASTM C 840, and as allows:

A. Joint Tape: Paper reinforcing tape, unless otherwise indicated.
   1. Use open-weave glass fiber tape where recommended by gypsum board Mfr. with use of setting-type joint compound.
   2. Provide a jointing system, including reinforcing tape and compound, designed as a system to be used together and as recommended for this use by the manufacturer of the gypsum wallboard approved for use on this work.

B. Drying-Type Joint Compounds: Factory-prepackaged vinyl-based products complying with the following requirements:
   1. Ready-Mix Formulation: Factory-premixed.
   2. All-purpose compound formulated for use as both taping and topping compound.
   3. Jointing compound may be used for finishing if so recommended by its manufacturer.

C. Miscellaneous Materials: As follows, recommended by gypsum board Mfr.
   1. Gypsum Board Screws: ASTM C 1002.
   2. Sound Attenuation Blankets: ASTM C 665, Type I, unfaced mineral fiber blanket insulation.

2.6 FASTENING DEVICES

A. For fastening gypsum wallboard in place on metal studs and metal channels, use flat-head screws, shouldered, specially designed for use with power-driven tools, not less than 1” long, with self-tapping threads and self-drilling points.

2.7 ACCESS DOORS

A. In partitions and ceilings installed under this Section, provide doors where required for access to mechanical installations and electrical installations.

B. Types
   1. Unless otherwise required, provide 24” x 24” (or as required by code) metal access doors with concealed hinges to metal frame, and with Allen key lock.
   2. For piercing fire-rated surfaces, provide access doors having the same fire rating as the surface being pierced.
   3. For tile surfaces and toilet rooms, provide stainless steel access doors and frames, with satin finish.
   4. For other installations, provide prime-coated steel access doors and frames for finish painting to be performed at the job site under Section 09900 of these Specifications.

2.8 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION:

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.2 INSTALLATION

A. General
1. Install the gypsum wallboard to ceilings with the long dimension of the wallboard at right angles to the supporting members.
2. Wallboard may be installed with the long dimensions parallel to supporting members that are spaced 16” on centers when attachment members are provided at end joints.
3. Do not bridge building expansion joints. Leave space of the width indicated between boards, and trim both edges for installation of sealant or gasket.

B. Install and finish gypsum board to a level 5 finish and to comply with ASTM C 840 and as follows:
1. Form "Floating" construction for gypsum boards at internal corners, except where special isolation or edge trim is indicated.
2. Isolate drywall construction from abutting structural and masonry work; provide edge trim and acoustical sealant as recommended by Mfr.
3. Install sound attenuation blankets where indicated, without gaps; and support where necessary to prevent movement or dislocation.

C. Ceilings
1. Install the gypsum wallboard to ceilings with the long dimension of the wallboard at right angles to the supporting members. (Suspension System)
2. Wallboard may be installed with the long dimension parallel to supporting members that are spaced 16” on centers when attachment members are provided at end joints.

D. Walls
1. Install the gypsum wallboard to studs at right angles to the furring or framing members.
2. Make end joints, where required, over framing or furring members.

E. Attaching
1. Drive the specified screws with clutch-controlled power screwdrivers, spacing the screws 12” on centers at ceilings and 16” on centers at walls.
2. Where framing members are spaced 24” apart on walls, space screws 12” on centers.
3. Attach double layers in accordance with the pertinent codes and the manufacturer’s recommendations as approved by the Architect.
4. Screw gypsum board to metal supports.

F. Access doors
1. By careful coordination with the drawings and with trades involved, install the required access doors where required.
2. Anchor firmly into position, and align properly to achieve an installation flush with the finished surface.

3.3 JOINT TREATMENT

A. General

1. Inspect areas to be joint treated, verifying that the gypsum wallboard fits snugly against supporting framework.
2. In areas where joint treatment and compound finishing will be performed, maintain a temperature of not less than 55 degrees for 24 hours prior to commencing the treatment, and until joint and finishing compounds have dried.
3. Apply the joint treatment and finishing compound by machine or hand tool.
4. Provide a minimum drying time of 24 hours between coats, with additional drying time in poorly ventilated areas.

B. Embedding compounds
1. Apply to gypsum wallboard joints and fastener heads a thin uniform layer.
2. Spread the compound not less than 3" wide at joints, center the reinforcing tape in the joint, and embed the tape in the compound. Then spread a thin layer of compound over the tape.
3. After this treatment has dried, apply a second coat of embedding compound to joints and fastener heads, spreading in a thin uniform coat to not less than 6" wide at joints, and feather edged.
4. Sandpaper between coats as required.
5. When thoroughly dry, sandpaper to eliminate ridges and high points.

C. Finishing compounds
1. After embedding compound is thoroughly dry and has been completely sanded, apply a coat of finishing compound to joints and fastener beads.
2. Feather the finishing compound to not less than 12" wide.
3. When thoroughly dry, sandpaper to obtain a uniformly smooth surface, taking care to not scuff the paper surface of the wallboard.
4. Drywall Finishing: Apply joint tape and joint compound at joints between gypsum boards. Apply compounds indicated below at accessory flanges, penetrations, fastener heads and surface defects. All drywall to be a level 4 finish. Except in the Courtroom which is to be level 5 finish.

3.4 CORNER TREATMENT

A. Internal corners: Treat as specified for joints, except fold the reinforcing tape lengthwise through the middle and fit neatly into the corner.
B. External corers
1. Install the specified corner bead, fitting neatly over the corner and securing with the same type fasteners used for installing the wallboard.
2. Space the fasteners approximately 6" on centers, and drive through the wallboard into the framing or furring member.
3. After the corner bead has been secured into position, treat the corner with joint compound and reinforcing tape as specified for joints, feathering the joint compound out from 8" to 10" on each side of the corner.

3.5 OTHER METAL TRIM
A. General
1. The drawings do not purport to show all locations and requirements for metal trim.
2. Carefully study the drawings and the installation, and provide all metal trim normally recommended by the manufacturer of the gypsum wallboard approved for use in this work.

3.6 CLEANING UP
A. In addition to other requirements for cleaning, use necessary care to prevent scattering gypsum wallboard scraps and dust, and to prevent tracking gypsum and joint finishing compound onto floor surfaces.

B. At completion of each segment of installation in a room or space, promptly pick up and remove from the working area all scrap, debris, and surplus material of this Section.

END OF SECTION 09260

SECTION 09660 - VINYL PLANKS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Vinyl Planks

1.2 SUBMITTALS

A. Comply with the requirements of section 01340.

B. Product Data: Submit technical data from each manufacturer of resilient products required.

C. Initial Samples: Submit manufacturer's standard color selection samples for resilient products required, including all available colors and patterns.

1.3 PROJECT CONDITIONS

A. Environmental Requirements: At least 48 hours prior to beginning work, move resilient flooring materials to areas of installation and maintain at minimum 70 degrees F until 48 hours after completing installation and at minimum 55 degrees F thereafter.

B. Sequencing: Do not begin installation of resilient flooring products until painting has been completed for each area.

C. Existing Conditions: Do not install resilient flooring on concrete substrates until testing has been conducted to assure that moisture levels are acceptable.

1.4 MAINTENANCE

A. Extra Materials: At time of completing installation, deliver stock of maintenance materials to the owner. Furnish products matching those actually installed, packaged for storage and clearly labeled.

B. Vinyl planks: 10 planks of each variety.

PART 2 - PRODUCTS

2.1 VINYL PLANK

A. ShawContract, Solitude

B. Colors to be selected.

C. Equal products by Tarkett or Mohawk or approved equal.

2.2 MISCELLANEOUS ACCESSORIES

A. Resilient Edge Strips: Solid rubber or vinyl edging, in tapered or rounded profile, nominally 1 inch in width and 1/8 inch in thickness.

B. Color: Matching flooring.

C. Adhesive: Type recommended by manufacturer of resilient product for specific substrate conditions.

2.3 COLORS AND PATTERNS

A. Provide colors and patterns of resilient flooring materials as selected by the architect from manufacturer's standard product line.

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION REQUIREMENTS

A. Comply with manufacturer's published recommendations for installation in each area, extending resilient flooring into spaces which are partially concealed. Cut and fit tightly to fixtures, pipes, and other obstructions, as well as to walls and partitions.

B. Tightly adhere resilient flooring to substrate with no open joints or cracks, and without raised or blistered areas. Spread adhesive evenly, so that final installation will be without telegraphed markings from adhesive or substrate.

C. Verify conditions ready to receive all work of this section. Do not proceed until unsatisfactory conditions are corrected.

3.2 TILE INSTALLATION

A. Layout: Establish center of each space and lay tile from center point, so tiles at each edge will be not less than 1/2 tile and equal in width.

B. Matching: In each space, use tiles from same production run, and lay tiles in same sequence as removed from cartons. Discard broken, chipped, or otherwise damaged tiles.

C. Lay tile square to room axis.

D. Lay tile to achieve monolithic appearance, with pattern in all tiles oriented in same direction.

3.3 INSTALLATION OF MISCELLANEOUS ACCESSORIES

A. Resilient Edge Strips: At locations shown on drawings, or where otherwise required to protect edge of resilient flooring, install resilient edge strips securely with recommended adhesive, to achieve tightly butted joint.

3.4 CLEANING

A. Initial Cleaning: Remove excess and waste materials promptly, and sweep or vacuum clean resilient flooring as soon as installation has been completed in each area. After adhesive has had adequate time to set, mop each area with damp mop and mild detergent.

B. Final Cleaning: Remove scuff marks, excess adhesive, and other foreign substances, using only cleaning products and techniques recommended by manufacturer of resilient products. The contractor shall provide final waxing and buffing at the completion of the project.

C. Provide Owner with manufacturer's standard cleaning procedures.

END OF SECTION 09660

SECTION 09900 - PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General Conditions, Amendments to General Conditions, and Supplementary Conditions and Sections in Division 1 of the Specifications apply to work of this section.

1.2 DESCRIPTION

A. Work included: Paint and finish the exterior and interior exposed surfaces listed on the Painting Schedule in Part 3 of this Section, as specified herein, and as needed for a complete and proper installation.

B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Priming or priming and finishing of certain surfaces may be specified to be factory-performed or installer-performed under pertinent other Sections.

C. Work not included:
1. Unless otherwise indicated, painting is not required on surfaces in concealed areas and inaccessible areas such as furred spaces, foundation spaces, utility tunnels, pipe spaces, and duct shafts.
2. Metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze, and similar finish materials will not require painting under this Section unless otherwise indicated.
3. Do not paint moving parts of operating units; mechanical or electrical parts such as valve operators; linkages; sensing devices; and motor shafts, unless otherwise indicated.
4. Do not paint over required labels or equipment identification, performance rating, name, or nomenclature plates.
5. Do not paint concrete which has been sandblasted.

D. Definitions:
1. "Paint," as used herein, means coating systems materials including primers, emulsions, epoxy, enamels, sealers, fillers, and other applied materials whether used as prime, intermediate, or finish coats.

1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 01340.

B. Product data: Within 45 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
1. Materials list of items proposed to be provided under this Section;
2. Manufacturer’s specifications and other data needed to prove compliance with the specified requirements.

C. Samples:
1. Colors as selected.

1.4 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1. Paint shall be tinted by the Paint Company; on-site tinting is not permitted.

B. Paint coordination:
1. Provide finish coats which are compatible with the prime coats actually used.
2. Review other Sections of these specifications as required, verifying the prime coats to be used and assuring compatibility of the total coating system for the various substrate.
3. Upon request, furnish information on the characteristics of the specific finish materials to assure that compatible prime coats are used.
4. Provide barrier coats over non-compatible primers or remove the primer and re-prime as required.
5. Notify the Architect in writing of anticipated problems in using the specified coating systems over prime-coatings supplied under other Sections.

C. Provide 8’ x 8’ wall and 8’ x 8’ ceiling mock-up panel for approval of finishes.

1.5 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01620.

1.6 JOB CONDITIONS

A. Do not apply solvent-thinned paints when the temperature of surfaces to be painted and the surrounding air temperatures are below 45 degrees F, unless otherwise Permitted by the manufacturers' printed instructions as approved by the Architect.

B. Weather conditions:
1. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85%; or to damp or wet surfaces, unless otherwise permitted by the manufacturers' printed instructions as approved by the Architect.
2. Applications may be continued during inclement weather only within the temperature and humidity limits specified by the paint manufacturer as being suitable for use during application and drying periods.

1. 7 EXTRA STOCK

A. Upon completion of the Work of this Section, deliver to the Owner an extra stock equaling one gallon of each color, type, and class of paint used in the Work. Tightly seal each container, and clearly label, stating contents and location(s) where used.

PART 2 - PRODUCTS

2.1 PAINT MATERIALS

A. Acceptable materials:
   1. Benjamin Moore. Sherwin Williams, Devoe or approved equal

B. Undercoats and thinners:
   1. Provide undercoat paint produced by the same manufacturer as the finish coat.
   2. Use only the thinners recommended by the paint manufacturer and use only to the recommended limits.
   3. Insofar as practicable, use undercoat, finish coat, and thinner material as parts of a unified system of paint finish.

2.2 COLOR SCHEDULES

A. As selected

2.3 APPLICATION EQUIPMENT

A. For application of the approved paint, use only such equipment as is recommended for application of the particular paint by the manufacturer of the particular paint, and as approved by the Architect.

B. Prior to use of application equipment, verify that the proposed equipment is actually compatible with the material to be applied, and that integrity of the finish will not be jeopardized by use of the proposed equipment.

2.4 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. General:
   1. Mix and prepare paint materials in strict accordance with the manufacturers' recommendations as approved by the Architect.
   2. When materials are not in use, store in tightly covered containers.
   3. Maintain containers used in storage, mixing, and application of paint in a clean condition, free from foreign materials and residue.
   4. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

B. Stirring:
   1. Stir materials before application, producing a mixture of uniform density.
   2. Do not stir into the material any film which may form on the surface, but remove the film and, if necessary, strain, the material before using.

3.2 SURFACE PREPARATION

A. General:
   1. Perform preparation and cleaning procedures in strict accordance with the paint manufacturers' recommendations as approved by the Architect.
   2. Remove removable items which are in place and are not scheduled to receive

paint finish; or provide surface-applied protection prior to surface preparation and painting operations.

3. Following completion of painting in each space or area, reinstall the removed items by using workmen who are skilled in the necessary trades.
4. Clean each surface to be painted prior to applying paint of surface treatment.
5. Remove oil and grease with clean cloths and cleaning solvent of low toxicity and flash point in excess of 200 degrees F. prior to start of mechanical cleaning.
6. Schedule the cleaning and painting so that dust and other contaminants from the cleaning process will not fall onto wet newly painted surfaces.

B. Preparation of wood surfaces:
1. Clean wood surfaces until free from dirt, oil, and other foreign substance.
2. Smooth finish wood surfaces exposed to view, using the proper sandpaper. Where so required, use varying degrees of coarseness in sandpaper to produce a uniformly smooth and unmarred wood surface in preparation for the application of stain.
3. Unless specifically approved by the Architect, no not proceed with painting of wood surfaces until the moisture content of the wood is 12% or less as measured by a moisture meter approved by the Architect.

C. Preparation of metal surfaces:
1. Thoroughly clean surfaces until free from dirt, oil, and grease.
2. On galvanized surfaces, use solvent for the initial cleaning, and then treat the surface thoroughly with phosphoric acid etch. Remove etching solution completely and allow to dry thoroughly before application of paint.
2. Allow to dry thoroughly before application of paint.

3.3 PAINT APPLICATION

A. General:
1. Touch-up shop-applied prime coats which have been damaged, and touch-up bare areas prior to start of finish coats application.
2. Slightly vary the color of succeeding coats.
   a. Do not apply additional coats until the completed coat has been inspected and approved.
   b. Only the inspected and approved coats of paint will be considered in determining the number of coats applied.
3. Sand and dust between coats to remove defects visible to the unaided eye
4. On removable panels and hinged panels, paint the back sides to match the exposed sides.

B. Drying:
1. Allow sufficient drying time between coats, modifying the period as recommended by the material manufacturer to suit adverse weather conditions.

C. Brush applications:
1. Brush out and work the brush coats onto the surface in an even film.
2. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, and other surface imperfections will not be acceptable.

D. Spray application:
1. Except as specifically otherwise approved by the Architect, confine spray application to concrete masonry surfaces, metal framework and similar surfaces

where hand brush work would be inferior.

2. Where spray application is used, apply each coat to provide the hiding equivalent of brush coats.
3. Do not double back with spray equipment to build up film thickness of two coats in one pass.

E. For completed work, match the approved Samples as to texture, color, and coverage. Remove, refinish, or repaint work not in compliance with the specified requirements.

3.4 PAINTING SCHEDULE

A. Provide the paint finishes as indicated.

B. Number of coats Required:
1. First coat: Primer.
2. Second and Third coat: Finish Coats

C. Provide Block Filler on all Concrete and Masonry Units and minimum 2 Finish Coats.

END OF SECTION 09900

SECTION 10520 – FIRE EXTINGUISHERS AND CABINETS

PART 1 – GENERAL

1.1 DESCRIPTION

A. Work included: Provide fire extinguishes and cabinets where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 01340.

B. Product data: Within 45 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
1. Materials list of items proposed to be provided under this Section.
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
3. Dimensioned drawings as needed to depict the space required for these items, and their interface with the work of other trades.
4. Manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the work.

1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01620.

PART 2 – PRODUCTS

2.1 FIRE EXTINGUISHERS

A. At each fire extinguisher cabinet, provide one multi-purpose chemical fire extinguisher with UL rating of 2A-10B; C, Larsen model, "MP5", with standard hood or equal products by J-L Industries or Potter Roemer.

B. Service, charge, and tag each fire extinguisher not more than five calendar days prior to the Date of Substantial Completion of the work as that date is established by the Architect.

PART 3 – EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.2 INSTALLATION

A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.

B. Install the work of this Section in strict accordance with the original design, the approved Shop Drawings, pertinent requirements of governmental agencies having jurisdiction, and the manufacturer's recommended installation procedures firmly into position for long life under hard use.

C. Coordinate all locations with local Fire Inspector before blocking out cabinet locations.

3.3 LOCATION:

A. Provide fire extinguishers and standard mounting bracket located on drawings G-2.

END OF SECTION 10520

SECTION 10800 – TOILET ROOM ACCESSORIES

PART 1 – GENERAL

1.1 DESCRIPTION

A. Work included: Provide toilet room accessories where indicated on the Drawings, as specified herein, and as needed for a compete and proper installation.

B. Related work

1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.3 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01620.

PART 2 - PRODUCTS

2.1 TOILET ROOM ACCESSORIES

See Drawings.

2.2 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 – EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.2 INSTALLATION

A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.

B. Install each item in its proper location, firmly anchored into position, level and plumb, and in accordance with the manufacturer's recommendations.

C. Provide blocking in walls for toilet accessories and all handicap grab bars, etc. in all locations as required by code.

END OF SECTION 10800